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ENTOMOLOGY

Gleanings in Bee Culture

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H. H. ROOT, Assistant Editor.

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VOL. XLI.

JANUARY 1, 1913

NO. 1

Editorial

BEEKEEPERS of Ohio should remember the Ohio State Beekeepers' convention at Columbus, Townsend Hall, Ohio State University, Jan. 14 and 15 next. This promises to be the most largely attended convention we have had for many a year. See Convention Notices elsewhere.

MR. DOOLITTLE, in this issue, says he would prefer to have long-lived bees for honey-gathering, even if they are not quite so numerous, rather than a populous colony of short-lived ones. This is a fruitful field for discussion. Perhaps some others would like to give their experiences.

WARM FALL WEATHER CAUSING BEES TO CONSUME THEIR STORES.

IN our Nov. 1st issue, page 679, we reported the shortage of stores in New York. Since then reports have come in from other parts of the country showing that the unusual amount of warm weather in the fall caused the bees to consume a much larger amount of their stores than they ordinarily do at this period. We predict now that many colonies will die of starvation, whether the coming winter be mild or severe. Don't take any thing for granted. Better make an investigation at the first opportune time, and make sure that there are stores enough.

A CORRECTION.

By mistake we credited the picture of the very fine honey exhibit as shown on page 811 of the December 15th issue to Mr. Myers, manager of the Spokane Interstate Fair, whereas it was sent us originally by Mr. F. W. Van De Mark, of Stillwater, Oklahoma, and represents the exhibit of B. F. Bartholomew at the Oklahoma State Fair for 1912. We do not often make blunders of this kind; but we certainly "put our foot in it" on this occasion.

Mr. Van De Mark's letter was duly received; but the photograph he mentioned was delayed in the mails, and did not reach us until about a week later. It so happened

that, when it did come in, the same mail brought the other photograph from Mr. Myers, and these two happened to be close together with Mr. Myers' letter.

The letter of explanation from Mr. Van De Mark, referring to the engraving on page 811, we give herewith:

I enclose a photo of B. F. Bartholomew's exhibit at the Oklahoma State Fair for 1912, just closed. The design in wax, reading "The Home of the Honeybee," and the companion piece at the other side, showing honey-plant with blossoms and bees flying, are all hand-carved work. Few persons will realize the work it has taken on the part of Mr. Bartholomew and his good wife to put this one thousand pounds of honey in glass, mount the honey-plants, and place the exhibit. All of the honey and wax shown is the product of their own bees, and it represents about one-fifth of their honey crop for the year.

Besides the exhibit shown in the picture, there were four others, nearly as good, which speak well for a new State as a honey-producer.

F. W. VAN DE MARK.

The fault is our own in the above instance; but at the same time we wish that our readers, when sending photographs, would take the precaution to write their address plainly on the back of the photograph itself, for the wrappers are often torn or missing altogether, so that it is sometimes difficult to identify each one. In the course of a year we receive a large number of photographs, of which we can use only a small part, and it is of the greatest importance that the addresses of the senders be plainly marked on the back of each, for many times the same mail brings two or more photographs of a similar subject.

CHARACTER OF MATERIAL USED IN BEGINNERS' NUMBER.

IN this issue, the first of our special numbers for 1913, our readers will observe that we have made no effort to select from the material sent us only such articles as portray the rosier side of beekeeping; in fact, we have selected such articles as bring out the mistakes commonly made by beginners.

Lest any beginner reading these pages should be discouraged at the start, and im-

MAR 11 1914

agine that beekeeping is attended by terrible obstacles, we may say that probably the majority starting with bees, if they make something of a study of one or more textbooks on the subject, the chance for costly mistakes is reduced to a minimum. As we have pointed out on another page, if this were not true there would be few beginners who would not become disgusted and go out of the business at once.

Quite a number of our friends responded too late to our call for material to be used in this beginners' number. It is now becoming necessary for us to have in our hands the manuscript to be used, at least three weeks before date of publication, for our plans have to be laid considerably in advance.

WINTERING DOUBLE-WALLED HIVES IN THE CELLAR.

We are trying the experiment of putting some of our colonies, even though in double-walled hives, in the cellar during the coldest part of the winter. Two days ago we put in 100 colonies, taking those from our apiary that were the weakest and the most likely to suffer when severely cold weather should come on. We expect to keep these in the cellar until about March 1; for the stronger colonies will be left outdoors as usual. A year ago we put in the cellar something like 60 or 75 colonies that were somewhat weak, leaving the strongest ones outdoors. The winter, as every one knows, proved to be an extraordinarily severe one. The colonies in the cellar wintered by all odds the best of any we had. We made up our minds that, if another severe winter like the one we had a year ago should come again, we would put nearly all of the bees in the cellar. Fortunately these cold winters come only about once in thirty years.

As a general rule, fair-sized colonies in our locality winter better out of doors than in; hence we shall continue to winter mainly in double-walled hives. In our locality bees have an opportunity for flight on an average of about three or four times in winter.

THAT WINTER NEST AGAIN; A RAP AT DR. MILLER.

ON page 6 of this issue our correspondent Mr. J. L. Byer takes a rap at Dr. Miller. We are not sure whether the "rap" was intended for Dr. Miller or for us. If for us we will try to parry the blow. Mr. Byer describes a colony that has combs solid with stores without any winter nest; and he offers the implied challenge that this will not die during winter. We are inclined to agree with him, because if a colony (es-

pecially if a strong one) has combs solid with stores by Nov. 7 they will have a sufficient winter nest by the middle of January, or about the time settled cold weather comes on. We do not remember what Dr. Miller may have claimed; but our contention is that every colony of bees, if given an opportunity, will form a winter nest or have one before severe cold sets in. This seems to be in accordance with their natural instinct; for when severe weather comes on it is better for one cluster of bees to be separated by only the thin midribs of the combs than by a solid wall of stores one inch thick. In the former case the cluster is practically homogeneous. In the latter it is broken up by cold slabs of stores one inch thick. They can't warm up these slabs because they project beyond the cluster where it is cold. These cold projections convey the cold back to the cluster. Now, Dr. Miller, it is up to you to give Mr. Byer another jab if you think he needs it.

BEEES TRAIL HONEY-THIEVES.

THE following clipping from the *Saturday Blade*, of Chicago, was called to our attention by one of our subscribers, G. F. Jones, Galax, Va.

STERLING, COL., Oct. 24.—When J. M. Cornelius, a honey-producer near Sterling, awoke the other morning he found that in the night fifteen beehives had been looted of fifty pounds of honey. He followed the dispossessed bees to the home of two brothers, living a mile away. There he found the bees swarming about the house, while the brothers, besieged, had shut the door and windows and were afraid to go out. Cornelius swore out warrants for the arrest of the men. They admitted the theft.

When bees show traces of sentiment the tendency can generally be explained in another way. For instance, recalling the old belief that bees would follow the coffin of their owner to the grave, we know that, in the rare instances where they did so, it was because the odor of the fresh varnish used on the newly made coffin attracted the bees by its resemblance to propolis. And in the above case, while the bees apparently exhibited some of the detective ability of Sherlock Holmes, it is plain that the thieves, not knowing that bees during a time of honey dearth are also keen for robbing, did not take the necessary pains to prevent dropping some honey from the broken combs along the way. The bees, of course, immediately found this, and were busy in carrying it back to their hives.

Bees are truly wonderful creatures, but they get a great deal of credit that does not rightly belong to them. We often hear of their affectionate natures—how they mourn when their owner dies, or how they know the one handling them so that they do not sting him, etc.; but there are enough won-

ders in the life of the busy bee without going so far into the realms of imagination.

ADULTERATION AND MISBRANDING OF FIG AND HONEY CAKES.

For over a year we have been looking over the special leaflets sent out by the United States Department of Agriculture with a view of noticing in these columns any case of adulteration or misbranding, of interest to beekeepers. However, though we have found one or two, foods said to contain honey seem to be seldom adulterated. It is very encouraging that one of the results of the pure-food law, unscrupulous dealers are getting tired of trying to substitute glucose or other cheap sweets for honey.

The last instance that has come under our notice has been that of the adulteration and misbranding of fig and honey cakes. We give here the full history of the case as given in the leaflet, as it serves to illustrate just how Uncle Sam goes at a thing of this kind.

On May 23, 1912, the United States Attorney for the District of New Jersey, acting upon a report of the Secretary of Agriculture, filed in the District Court of the United States for said district an information against A. A. Strohecker, Trenton, N. J., alleging shipment by said defendant, in violation of the Foods and Drugs Act, on August 16, 1911, from the State of New Jersey into the State of New York, of a consignment of the product known as fig and honey cakes which were adulterated and misbranded. The product was labeled: "Fig & Honey 19 S. Lipowicz, Buffalo, N. Y." (Guaranteed stamped on side of box): "U. S. Serial No. 2751. Guaranteed under Food and Drugs Act June 30, 1906."

Analysis of a sample of the product by the Bureau of Chemistry of this Department showed the following results: Reducing sugars as invert before inversion, 39.89 per cent; commercial glucose, 37.91 per cent; polarization direct at 21 degrees C., 58.6; polarization invert at 21 degrees C., 58; polarization invert at 87 degrees C., 61.8; weight, 17.125 pounds; shortage (marked and sold for 19 pounds), 9.87 per cent. Adulteration was alleged in the information for the reason that the product being an article for food contained a substance, to wit, commercial glucose, which had been substituted in part for the product. Misbranding was alleged for the reason that the statement on each of the boxes containing the product, to wit, "Fig & Honey 19," would mislead and deceive the purchaser into the belief that the product consisted of fig and honey cakes, and that the contents of each package weighed 19 pounds, whereas in truth and in fact the product contained a substance, to wit, commercial glucose, which had been substituted in part for said product, the presence of which was not declared upon the label, and had been substituted in part for the genuine article, and the contents of each box weighed less than 19 pounds, to wit, 17 1/8 pounds; and further, in that the statement "Guaranteed under the Food and Drugs Act, June 30, 1906," borne on the package created the impression that the product was guaranteed by the United States to be pure, whereas such was not the fact; and further, in that the product was in package form, and the contents were stated in terms of weight to be 19 pounds, and were not correctly stated on the outside of the package, that is to say, the contents of each of said packages weighed only 17 1/8 pounds and not 19 pounds, as labeled.

On May 27, 1912, the defendant entered a plea of guilty, and the court imposed a fine of \$50.

W. M. HAYS, Acting Secretary of Agriculture.
Washington, D. C., August 13, 1912.

FEEDING COLONIES SLABS OF HARD CANDY OR MOIST SUGAR DURING THE WINTER IN LIEU OF ORDINARY SEALED STORES IN THE COMBS.

ELSEWHERE in this department reference is made to the fact that the beautiful fall weather we have been having throughout the northern States, and the comparatively mild winter weather, will have a tendency to cause the bees to use up their stores more rapidly than they otherwise would. In some of our own apiaries we find colonies a little lighter than we feel is safe. We are making up a hundred slabs of hard candy. The hot candy when "done enough" is poured into paper pie-dishes, such as one can purchase at any of the groceries for 40 to 50 cts. a hundred. When cold, these pie-dishes will be inverted and placed directly over the clusters that appear to have an insufficient supply of stores.

Mr. A. C. Miller recently made the statement that coffee A sugar (a moist sugar) can be given to the bees direct. The advantage of it is that it is ready without any special preparation. We have never tried it, but see no reason why it should not be an excellent food. Two or three cross-cleats laid on top of a dish of it will provide an empty space between the cushion and the dish of sugar for a clustering space. The recipe for making hard candy for bees is as follows:

HARD CANDY FOR WINTER AND SPRING FEEDING: HOW TO MAKE IT.

Into a dish of hot water on the stove slowly pour an equal amount of sugar, stirring constantly. Make sure that the sugar is all dissolved before boiling commences. If this precaution is not observed, some of the undissolved sugar is likely to burn, injuring the flavor of the candy and almost surely causing trouble with the bees later. If you have a candy thermometer, watch the temperature, and do not let it go above 275 to 280 degrees. Test frequently by dropping a very little of the syrup into cold water (about 50 to 55 degrees F.). When the boiling has continued long enough the drop of candy, when cooled in the water, should be hard and brittle when taken out; but when placed in the mouth it should soften slightly, so that it is tough. When this time has arrived, pour the syrup immediately.

The color of the candy when cold should be about that of light basswood honey. If it is darkened very much it is scorched and unfit for the bees. To prevent the scorching, reduce the fire toward the last so that the syrup will boil but slowly.

When the candy is first made, it is hard and glassy, and perfectly transparent; but after it stands for a little time it becomes somewhat watery and crystalline; but this is all the better so far as the bees are concerned, for they are enabled to take it more easily.

In regard to hard candy we may say that A. I. Root, years ago, wintered a number of his colonies on it when the bees had nothing but dry combs. We apprehend there will be a good many of our subscribers who, if they will look through their colonies, will find some that are so low that there will be danger of their starving before spring unless fed candy or sugar.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

LIGHT in cellar works in Marengo just as in Borodino, p. 795. As a postscript it might be added that, when bees are in best condition, they will stand a good deal of light; if in bad condition, light is bad.

A GOOD strain of Italians will not lay above the brood-nest, p. 798. May be not, Major Shallard, in Australia, where every thing stands on its head; but in this country the better the queen the more likely to lay above if crowded below.

PFARRER STRAEULI thus treats a swarm: He puts two frames of foundation in the center of the brood-chamber; places on it an excluder, and over this a story with empty combs and some honey, into which he puts the swarm. In no case has the swarm reissued.—*Deutsche Bzcht.*

G. M. DOOLITTLE, I had a good laugh over your trousers standing alone starched with honey, p. 795. I dislike honey on my hands exceedingly; but if I had no water, before using my trousers I'd scour the honey off my hands with earth. "Dirty?" Well, however it may look, soil does not feel so dirty as honey.

BEES should have a larger entrance in winter than in summer, p. 799. That depends, friend Johnson. In this region, bees can hardly have too large an entrance in hot weather. Same in winter, if cellared. But outdoors they would hardly stand in winter to have so large an entrance as my bees have in summer.

CONTRACTING the brood-chamber for winter is advocated because it makes less room for the bees to keep warm in winter. The editor of *Deutsche Bzcht.* says, p. 143, that nothing could be more absurd, since for best wintering the bees must cluster in a sphere, and in too small a chamber there is not room for this. [The editor of *Deutsche Bienenzeitung* is evidently laboring under a misapprehension as to the amount of contraction that is ordinarily practiced in this country. No full colony is ever contracted down to less than five or six frames wide. Such space would give a strong colony all the clustering room it could possibly require. In fact, we have seen powerful colonies contract into a ball during cold weather nearly as small as a doubled fist. Even a three-frame space would accommodate such a cluster, and of course a five or six frame space would be ample.—Ed.]

YOU fellows who have never had any but modern extractors don't know how blest you are. In bygone years, when I produced extracted honey, I had a Peabody ex-

tractor, the pioneer extractor, with can and all revolving. This year, by means of a certain editor who is urging the production of comb honey, I got an up-to-date four-frame extractor, too late for any thing else except to extract a lot of unfinished sections; but, oh the delight it was to extract them! Before the extractor came I had studied just how I would manage in lifting and reversing the frames to have as little drip as possible, for the most unpleasant thing in former years had been the messy drip when frames were lifted out. To my surprise, when I now lifted out the frames there was no drip! I could hardly believe my eyes. And the delightful ease of turning the crank, compared with the former stooping over to revolve the whole machine! I can hardly wait to use that extractor next year, unless the good Lord has something better for me to do before that time. [We hope the good Lord will spare you the pleasure of trying out a modern equipment for taking extracted honey.—Ed.]

JOS. KOCH, *Schweiz. Bztg.*, 310, reports a queen, born in the early summer of 1906, still vigorous and doing good work in 1912. He is sure there can be no mistake as to her age, for she was marked red, and he has marked no queen since with that color. She is of the "Nigra" stock, and was sent to a mating station for pure fertilization. [This is a very remarkable instance of longevity. Had not Mr. Koch marked the queen red we should have said he was surely mistaken. The ordinary supersedure takes place so quietly that in most cases the apiarist never gets any knowledge of it; and when he does see the new queen mother, she often looks so much like the old one that she passes for her.]

But we do not know any way of marking a queen red so that the coloring would not come off in the lapse of six years. If Mr. Koch or anybody else can tell us how to do this with some coloring matter that will not be injurious, he will be conferring a favor on beekeepers generally. As a general rule, however, queens are distinguished by the manner of clipping their wings, either on the left or right side, and by angle cuts. For example, a square-off cut on the left side could indicate 1912; and an angle cut (one each way) could be made to indicate 1913 and 1914. Similar markings on the right side could represent three years more, which certainly would be long enough for at least 99 per cent of all queens.—Ed.]

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Owing to the demand for space, I will for the present at least discontinue the writing of my summer trip. I find many things of which I wish to write that will be of more interest to my readers, though there is much yet to be said of conditions and beekeepers as I found them on my trip that will be given when the time seems opportune. * * *

LIGHT-AMBER SAGE (?)

In market quotations, Nov. 15, Hamilton & Menderson, of Los Angeles, quote "Light-amber sage." It is my opinion that this is stretching a point. If a producer attempted to sell light amber to this firm as sage they would no doubt fail, and properly so, for there is no such grade in sage honey, and no one knows it better than Hamilton & Menderson. The world produces no better honey than the true sage, which, in its purity, is *white*; but when containing a quantity of other kinds sufficient to put it in the light-amber class it should no longer be called sage.

Any attempt to lower the reputation of sage honey by selling other kinds as "light-amber sage" should be resented by those who take pride in producing the true article, and by those who expect to obtain a fancy price on the merits of its color and quality as well as its world-wide reputation. * * *

SMALL ENTRANCES ALLOW MORE BEES TO WORK IN THE FIELD.

Dr. Miller, Nov. 1, p. 682, I believe the preference of bees for small entrances proves they are best for me, for the reason that what is best for them is best for me. The present agitation for large entrances I believe is not based on sufficient advantages to offset the disadvantages. There are several conditions to be taken into consideration in the discussion of this question. The first object should be to ascertain which will secure the greatest economy in hive service of the bee. The larger the entrance, the greater the number of bees required to guard it; and the ability of the bees to preserve their own heat is much reduced, requiring a greater number in the cluster on the combs for that purpose, thus again reducing the field force which would otherwise be available. These are two good reasons why a small entrance is preferable to a large one, and I believe them sufficient in themselves, though there are others well worth attention. I will admit that a hive booming full of bees can preserve sufficient warmth, regardless of a very large entrance, to build

up rapidly in the spring; but it is accomplished because there are sufficient bees to fill the outer edges of the space between the combs, thus keeping out the cold air with sheer bee force.

Supposing, however, we reduce the entrance to the actual size needed to allow free entrance and exit. In that case there will be a thinning of bees in those spaces, and a much greater force ready to take up the duties of the field.

In the spring of each year, when invoicing my stock of bees and ascertaining their condition, I often find it desirable to transfer a very small colony to a five-frame hive, because in this size of hive they are able to protect themselves better with fewer bees, and to preserve all the warmth they produce, thus enabling the queen to lay over a greater area of comb space than could possibly be kept warm in a ten-frame hive, especially with a large entrance. I am told that a large entrance will prevent or at least delay swarming. True, simply because it not only requires a greater number of bees to preserve the heat of the hive, but a greater number must remain for that duty when the swarm issues, thus requiring a longer period of breeding to reach the necessary strength, and a slower process because they are not able to protect their brood over so large an area where the entrance is allowing the admission of such a quantity of cold air.

Here is also the secret of an eight-frame hive for comb honey. Warmth is more easily preserved, and, in consequence, breeding is more rapid, thus filling the hive much sooner, enabling the bees to pass on up to the super, and there again to develop a sufficient amount of heat to make waxworking practical.

It is well known that bees generate much heat when evaporating nectar for extracting colonies. I have often found it desirable, when nectar was coming in freely, to increase the amount of comb space rather than entrance space. In very hot weather there may be a period when it would be desirable to give more ventilation; but in this climate there are indeed very few nights when they do not find it more comfortable in the hive, out of the cold air.

While we are furnishing the habitation, let us do so with an eye single to efficiency as well as economy in hive service, or else not blame the bees for doing some unavoidable loafing about the hive in order to protect their own welfare.

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

FLAVOR VS. COLOR.

Regarding the matter of choice in taste of honey being one of color or flavor I can agree with Dr. Miller that, if dark honey tasted all right, more would like it. White honey is preferred by the majority as a matter of taste, and yet taste can be cultivated to a certain extent. Who ever liked his first olive? And yet many, including the writer, are very fond of them. In our home at the present we have splendid honey of both basswood and clover; yet for a change we are using once in a while some buckwheat granulated honey of a very smooth texture. Formerly we could eat none of it at all; but we have learned to like the taste. Yet as a "stayer" we all like the white honey best, and I suppose this will be the case for all time with the majority, no matter how much we may boom our buckwheat.

* * *

THE ONTARIO CONVENTION.

The Ontario Beekeepers' convention, held in Toronto Nov. 13, 14, and 15, was a success in the matter of attendance, interest, and good fellowship, and in all of these respects it possibly eclipsed all past meetings of the association. A number of our cousins from "over the line" graced the meeting with their attendance—something that was appreciated very much indeed by us Canucks, and we hope that they all enjoyed their short sojourn with us. In some future issue I hope to give some of the best thoughts of the meeting, after I have had time to digest somewhat the great amount of good things received while there. Officers for next season are practically the same as for last year, with the exception that Mr. Pettit assumes full responsibility as Secretary instead of Mr. Hodgetts, who was relieved on account of having so much work along other lines. Mr. Denis Nolan, of Newton Robinson, is again President. All communications in connection with the association work should be sent to Morley Pettit, O. A. C., Guelph, Ont.

* * *

On Wednesday and Thursday, Nov. 21 and 22, the bees had a splendid flight; and on Friday, the 23d, those at the east yard, 200 miles from home, were all put into the caves at that place. Conditions have been thus ideal for cellar wintering in so far as the *start* in the game is concerned; and with a normal season from now on, the bees wintering inside should come through in good order. At the home apiaries, all the bees had a good flight on the days mention-

ed; and since then up to the present time, Dec. 5, we have had no cold weather to speak of. To-day Mrs. Byer brought in a splendid bunch of pansies; so readers of GLEANINGS may know that we have had a very mild fall here in Ontario.

I might say that, just two days after the bees at the east yard were put inside, about two feet of snow fell. Certainly these bees went just at the right time. Here at home we had only enough snow to cover the ground, and it soon went away. As the weather has been quite mild, no doubt the most of the snow has disappeared out east too; but for all that, if the bees had been caught in a big snowfall the hives would have been in bad condition to carry inside.

* * *

With no desire to start a controversy over a matter that has been pretty well thrashed out in the past, I can not refrain from telling Dr. Miller of an experiment I am trying. Some time ago our good friend stated that if a colony of bees had *solid* combs of honey with no clustering space except the spaces between the combs, said colony would *die* during a prolonged cold spell. Without taking the trouble to look up the matter referred to, I believe that the doctor will remember the circumstances in connection with the discussion when he made the statement. During the last week in October a very strong colony in a regular Danzenbaker hive was fed all the bees it would take into the brood-nest. I might say that the colony is so strong that it was with difficulty the bees could get in the hive after the supers were taken off; in fact, during the coldest weather we have had yet, the bees are snug in every corner of the hive, although no packing is over them yet, all the covering over the frames being a quilt and roof above. Nov. 7 a feeder was again put on the hive, and they have carried down food until every cell must be filled, as they refuse to take any more, and start to build comb in the opening of the feeder. Now, these frames are spaced but $1\frac{3}{8}$ inches apart; and with solid frames of stores in the middle of November what will the bees do for a "winter nest" during the weeks and weeks of cold zero weather that we are pretty sure to have before spring—the colony being wintered on a summer stand, packed in a rough case? Will they die? If the writer is alive next spring, he will report, and in the meantime he will lose no sleep over the fate of that abused colony.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

Brother A. C. Miller, let's have a game of chess with your apiary-record system on page 666, Oct. 15. The ordinary beekeeper with 300 colonies or more will not have the patience to master your method. First you will have to educate him to feel the need of a book-record system; then you will have to give him a thorough course in hieroglyphics. You have laid plans for a 200-colony apiary, and I doubt whether a beeman can be prevailed upon to use it if he has that many colonies.

* * *

LESS ALFALFA BEING GROWN.

With the gradual development of the West from a stock-growing, cattle-feeding country to, a general farming and fruit-growing section, less alfalfa is being grown. Alfalfa is being plowed up to make place for sugar beets, potatoes, onions, and apple and peach orchards. With this development comes a closer and more intensive cultivation. The fence-corners and ditch-banks are kept free from sweet clover, and the roadsides are pastured by the farmers' cattle. Dandelions, sunflowers, and the resinweed produce very inferior honey, and the bees store large quantities of these honeys when the range for alfalfa and sweet clover is limited. These things account for the poorer quality and smaller quantity of honey produced in some of the regions of the West.

* * *

AFFILIATION OF BEEKEEPERS' ASSOCIATIONS.

The local and county association has a work to do that the State association can not do. The latter has work that neither the local nor the National Association can do. The National has work to do that neither the local nor the State associations can do. The problem before the beekeepers is, how to get all local, State, and national associations affiliated where each will help and be an aid to the other. If being affiliated with a State association draws strength from the local association, success is not permanent, and either the local goes down or the local withdraws from the larger association. At the present time there are three local associations in Colorado, none of which are affiliated with the State association. Several members in each local are members of the State association, and that is as far as it goes. The local association does not seem to be able to survive unless there is some financial gain to be had. This financial gain is secured through ordering

supplies in a body. Shipping honey together is also done on a limited basis. The fraternal association solely is going; and if local, State, and the national can be united on a business basis with the fraternal part on the side we can expect a larger degree of success all along the line.

* * *

STARTING ON A LARGE SCALE.

The beginner can start more varied trains of thought on beekeeping than a seasoned veteran would think of in several days. The veteran has mastered and forgotten so many things that the beginner asks about that a writer can not do better than to talk with some beginner in order to get original subjects for his writing.

The proverbial advice to beginners is, to start with a very few colonies and build up. That is all very well; but I have seen the beginners start with a hundred colonies, and make a success from the start. It depends on the man. A farmer or other rural worker who has had experience with farming, gardening, fruit-growing, etc., and has made a success at these, can begin with bees and make a success without the long tedious building-up from one or two hives. The trouble with the beginner is that he is so enthusiastic that he goes through his one or two hives every day or two, and worries them to death, or at least he secures only a partial crop. The man with more colonies will not have the time to open his hives so often, and will confine his operations more to preparing supers, arranging the apiary, taking honey, handling increase, etc. The beginner will probably have a lot of experience hiving swarms the first year; and when he runs up against difficulties he will seek out the experienced man for advice or will hunt up the points desired in the bee-journals or bee-books. I would disabuse the beginner of the thought that, because a man is making his sole living from bees, he is a master beekeeper. His success may be largely due to a favorable location. I have known men who have done well with bees for a term of years, and then when foul brood or poor seasons came they lost out completely. Beekeeping is pleasant work, and should yield as satisfactory returns as any other rural pursuit.

The field is open, and much money is not required, and I hope that we may have a good number of eager beginners added to our ranks during the coming year.

Conversations with Doolittle

At Borodine, New York.

PROLIFICNESS OF QUEENS VS. LONGEVITY OF BEES.

"As I am a comparative beginner, and much interested in the improvement of bees, will you not write something for your department regarding prolific queens, for my queens are disappointing in this respect?"

"I am aware that a hive full of brood at the right time of the year is a sight that entrances any apiarist; therefore prolificness in queens is something almost invariably desired, and that especially by beginners. I remember well when I used to read with wide-open eyes and mouth about certain queens being able to keep ten Langstroth frames full of brood for weeks and even months at a time. As I had few, if any, of which this could be said, I often thought the bees I had were not what they should be, which led me to buy queens of those claiming to have the most prolific strain in the world, but they were not much better.

"At our bee conventions a third of a century ago, in summing up the desirable qualities of any race of bees, or of a queen, prolificness was the quality almost always put at the head of the list. But some of us have changed our minds considerably since then, and consider that there are other points of more importance than great prolificness. Some have even asserted that great prolificness is often at the expense of other desirable qualities. There are few beekeepers who have not had it impressed upon them that it is not always the most prolific colony that gives the most surplus.

"I now consider quality in bees more to be desired than prolificness, for the more bees of poor quality one has the worse off he is. Some of our older heads are prone to stick to the ideas of half a century ago; but there are few classes of men more anxious to adopt progressive ideas and methods than are apiarists. But, no matter what our ideas, the fact remains that the colony of bees which gathers the largest surplus during each season, and consumes the smallest amount of this surplus in maintaining a good healthy existence between and after the honey-flows, is the most profitable one, and therefore the one to breed from. And in order to set to work intelligently for the improvement of stock to the highest standard of excellence, it is necessary to know the qualities which stand first in the make-up for first-class honey-gatherers.

"About twenty years ago there were daughters of a certain queen in my apiary whose bees forged ahead of the rest of the

colonies; but repeated examinations showed that these queens were hardly up to the average as brood-producers. In fact, with the exception of one or two, six Langstroth frames were the highest amount of brood any of these gave. And I began to study on this to find out the reason. I got up early in the morning, mistrusting that I would find them out at work while the colonies with a greater amount of brood and bees were asleep; but they did not get out earlier in the morning, nor seem to do a rushing business at any time, but just plodded away with a steady pull all day, with no seeming advantage along this line above the other colonies in the apiary; and this, not for one week, one month, nor one year; but a continual keeping ahead as regards the surplus produced, with fewer bees and no longer hours of work. Six frames of their brood seemed to give just as good results as eight or nine of other queens. This seemed unaccountable to me till one August a change of queens was necessary in one of the hives. As the new queen gave bees of a somewhat different color, and change solved the mystery, for I found many bees from the original queen busily at work bringing in honey clear up to the last of the following June. The longevity of these bees saved the labor, the honey, and the pollen necessary to rear two or three extra frames of brood reared by the more prolific queens, and this saving served to lengthen their time of service as field workers. Then I found that for out-apiary work, the small amount of brood for the size of the hive (I use a ten-frame Langstroth hive at the out-apiary) tended to discourage swarming. This was a gain of much value. Then less heat was required to rear a smaller amount of brood in early spring, and all tended toward longer life, which longer life gave the increased yield of surplus, and at less expense of bee force.

"After having found out some of the qualities, at least, which made for first-class honey-gatherers, I then set about working along the line of getting these queens in a way of putting the maximum number of bees on the stage of action at the time of the honey-flow or flows as they came in this locality, and only a sufficient number at all other times for a good healthy existence, as I have told the readers of the bee papers once or twice before. And this last is not by any means the least, for herein lies one of the greatest gains possible to make along the line of the improvement of any race."

General Correspondence

EXPERIENCES AND MISTAKES OF BEGINNERS

BY J. L. BYER

In glancing over the subjects outlined on the inside of the front cover of *GLEANINGS* for Dec. 1, the one in connection with mistakes and experiences of beginners struck me most forcibly. While not a beginner any more in the strict sense of the word (yet after all it seems but a short time since I was struggling to get enough bees to make a living) there are as yet no *veteran* feelings in my own mind; and as for experiences, naturally I have had the usual amount that come to the lot of anybody who starts in any business with no capital and with a family to support.

My first bees were bought on credit, but were not taken on those terms until earnestly requested to do so by the friend who had them for sale. My note for 12 months was given, and the bees were moved in November. They were in single-walled hives when bought, and after that date I transferred them into packed hives I had made, lifting the combs out two by two from one hive to another. Any one familiar with our climate knows that transferring bees in November here in Ontario is not good policy, but in this case luck favored me, and they wintered all right. The crop was good that season, and I paid for the bees, and had a bit of cash left. This was, of course, "experience;" but I am at a loss to say whether I would consider it a "mistake" for a person situated as I was to go in debt for bees or not. Certainly it is at best a risky way of starting. Just here I might state the promise of the man, that, in case I could not meet the note when due, he would not sue me any way. While he was perfectly honest in this assurance, I suspect it would have done him little good to take such a step, as it "is hard to get blood out of a turnip," as the old saying goes, and so just as useless to try to get money from a man who has none.

In looking back over the past few years I note many things that have been done that seem now to have been "mistakes," and yet under the circumstances I am led to wonder whether some of these "mistakes" could have been avoided. With only a few bees, it was impossible to think of making a living for the family, and of course the thing that came to my mind as a solution of the problem was in line with the advice of our departed friend Hutchinson, "Keep more bees."

With practically no capital, it was im-

possible for me to discriminate in the matter of hives, etc.; and, as a result, bees were bought anywhere I could get them, and in all kind of hives. This proceeding naturally gave and is giving me lots of "experience," and to the minds of most men it will no doubt be classed as a "mistake;" yet if placed in the same position again, I no doubt would do just as I did before, with some modifications learned by hard experience of the past. It certainly is, under ordinary conditions, a great mistake to have a number of different sizes of hives; but under exceptional conditions there is license for almost any thing, and the position I was in called for radical methods if I was going to keep on top.

During the time I was buying up bees here and there, many more colonies were kept by farmers than is now the case, and I soon learned that I could profitably buy first swarms, when they were offered to me, at about \$1.00 each. Many a night have I driven six or eight miles after a hard day's work on the farm, in order to bring home two or three colonies from some man to whom I had taken empty hives earlier in the season. I remember in particular a farmer friend who complained bitterly because his bees threw out so many after-swarms; and to help him out I told him to hive the first swarms on the old stands *a la* Heddon, and after six days move the old stock to a distant corner of the apiary. After a week or two he sent word to me to come and get the swarms he had hived for me; and, imagine my surprise to find the said swarms with all foundation drawn out, and the bees hanging outside the entrance in great clusters! He remarked, "I fixed the beggars this time so that they would not swarm the second time." He had followed my advice in the matter all right; but little did I suspect that I was going to profit by it at the time. As the man in question seldom tried to get any honey from his bees, my conscience did not bother me any, and I took the bees home, getting about 100 pounds of clover honey from each. This little episode gave me "experience" all right; and even up to the present I can not admit that there was any mistake so far as I was concerned.

About this time I contracted a disease that I am afraid has become chronic—namely, a desire to talk in the journals as well as face to face with people. Accordingly an article was sent to *GLEANINGS* in which I told of the advantages of big hives, incidentally mixing in some other twaddle as

well. Being more bashful than at the present time, my name was signed "Jack Canuck, Hoodstown, Ont." Hoodstown was the name of a postoffice in the north that I visited once, but which I knew was closed up at the time of writing. I was rather surprised to see the article printed, and to note that friend E. R. had appended a nice friendly footnote to the same. This made me bolder, and I immediately sent another article and received the surprise of my life when I got a letter from the publishers with a "credit note" enclosed. Doubtless poor Jack Canuck, of Hoodstown, had received a "credit note" also, and this on my part was a "mistake," and I have never since signed any name but my own, for fear some "credit note" might go astray.

To beginners in beekeeping, let me say that the habit of getting mixed up in the journals is very hard to "get cured off" when once contracted; so my advice is, never start it if you want to be saved a lot of work and the trouble of answering a pile of correspondence. Of course, if you have no objections to the things mentioned, go ahead, and probably you will get a lot of fun for your trouble, to say nothing of the bit of "pin money" that comes with it as a consoling reward.

The question will naturally be asked how foul brood was avoided when I bought bees in so many places. I was fully alive to the danger of this pest; and as I had never seen a case of foul brood I got in touch with friend McEvoy, and he sent me word when he was going to visit an infected apiary about 25 miles from my home. I made the journey of some 50 miles all told, and I think it paid me well, for from that time it has been no trouble for me to tell the disease at a glance—a cell of foul brood looking much like a blot of ink on a sheet of paper, if I dare make such a comparison. American foul brood has distinctive characteristics that can not be mistaken to the practiced eye, and I have often wondered at hearing some say that they could not learn to detect it. One thing is certain: The beginner to-day must learn to know bee diseases if he wishes to stay on the job. The trip I have mentioned was worth much to me, for shortly after that time I bought some bees at a sale and found they were diseased. They were promptly cleaned up; and although I have twice since that time bought it again (once knowingly, so as to avoid the bees being scattered all over the country), never have I had any difficulty in cleaning up; and at the present, in so far as I know, there is none in any of my yards.

After getting about 100 colonies in two yards, I had rather severe winter losses, and I came to the conclusion that this matter had to be solved if I wished to make a living out of bees. Diagnosing the dead colonies in the spring, I always found that the bees had either starved outright or else part of the cluster had run out of stores, the rest of the bees usually perishing later on in the spring from dysentery. I used to read about giving 25 or 30 pounds of stores for wintering; but gradually I learned that, for outdoor wintering, at least in our climate, it is necessary to have more than that amount, and that, generally speaking, it is a mistake to have a lot of unsealed pollen in the center of the brood-nest for the bees to cluster on.

I visited some of our most successful winterers, and came away with the idea that their success was not due to any particular kind of hive, packing, location, or other minor factors, but simply because they gave their bees abundance of good stores. After a number of years' "experience" with many "mistakes" made in the mean time, I have never changed that view, and upon that main principle rests the success of good wintering, all other factors mentioned such as hives, packing, etc., being mere incidentals. To the beginner I would urge due attention to this matter, especially if living in a cold climate, otherwise he will not only have unpleasant and unprofitable "experience," but in the end will have to pronounce his beekeeping career as a huge "mistake."

When taking a retrospective view like this, many events come to one's mind which, while interesting to the parties directly concerned, are not so to readers in general, so I will close this random article, but I wish to add that, with all my varied ups and downs in the struggle to make a living from bees, never once have I regretted my choice of a life vocation; and while we have not made so much money, the friends and associations formed during the time our work has been going on are valued far above monetary considerations. The help received so ungrudgingly from many friends in the past in the way of advice, etc., is remembered with pleasure, and it is always a source of pleasure for me to help others struggling along, when it is in my power to do so. Never once do I recall asking for any favor from a beekeeper but that it was granted in a spirit showing that the help was given freely. Last, but not least, the best help I have had in the matter of attaining any little success in life that has come our way is the company of a *good wife*; and let me say that every beginner

needs this "experience," otherwise his life is apt to be pretty much a series of big "mistakes."

Mount Joy, Ontario, Canada.

AN EXPERIENCE WITH BLACK BEES

A Fight with Hornets

BY OSCAR L. GOSSET

The latter part of June I found a small swarm of black bees hanging on a bush in the pasture. As I did not have a hive I made a box of nice clean lumber. The boards were 12 inches wide, and I cut them so as to make a box 12 inches wide, 12 in height, and 24 long. I hived the bees; and, although it was a small swarm, the colony went right to work. I left the bees under the bush where I had hived them, for about one week.

It happened that the hive was placed near a ditch; and in case of a hard storm the water might have risen and washed away the hive.

One evening, about ten o'clock, there were indications of an approaching thunder shower. The bees were my first thought. As it was so late in the evening, I knew that they would all be in the hive, and I thought it would be a good time to move them near the house, a distance of about sixty rods from where the hive was then located. I set the hive down not far from the house, where I could watch the bees. A day or two after I had moved them I found very few bees in the hive; so I went back to the pasture to the spot where the hive had been, and found most of the swarm clustered on a branch of the same bush on which I had first found them.

I returned home, made another small box, went back, and shook the bees from the branch in front of the box, and they all went in. That evening after sunset I brought the box with the bees to the house and emptied them in front of the first box. They all went in; and as they had made quite a large piece of comb in the first box I thought they would soon stay there. The next day I discovered that a few of the bees had returned to the bush in the pasture. I managed to get them into the box, and took them home in the evening, emptying them in front of the hive as before. The next day the bees were working well.

I noticed, about the middle of August, that the colony was not increasing very much. A few drones had hatched. I also noticed that the bees did not have a very large amount of honey, so I ordered a

Boardman feeder and proceeded to feed them. They had carried in about one quart of the syrup from the jar when one day I noticed some black hornets near the entrance, fighting the bees. The bees were out on guard as if attacked by robbers. I killed about a dozen of the hornets; and as there were no more in sight I stood watching the hive. A bee came out with a young bee which seemed to be dead, for it showed no life when I picked it up from the entrance where the bee dropped it. It looked as though it had been cut from the cell before time for it to come out, as its wings were shriveled.

A day or two after this I took a look at my bees. As I approached the hive I saw no bees flying; so I raised the hive, but found only about half a dozen dead bees lying on the bottom-board, and about half a dozen hornets sucking the comb in the hive. The honey and syrup that I had fed the bees had been all carried away, for the combs were almost dry. There was a little brood in one of the combs. Now, did those hornets chase the bees out of the hive and rob them? or did a strong colony of bees rob my bees? There were no other bees nearer than half a mile.

Maiden Rock, Wis., Sept. 24.

[Your principal mistake was in moving the colony after it had once been located and the bees had marked their location. Carrying a hive away in this manner without taking any precaution to make the bees mark their new location will always result in weakening the colony greatly, for the bees will keep attempting to go back to the old location, and many of them will be lost.

Undoubtedly the hornets bothered the bees considerably; but we think the chief trouble was that the colony was so small that the bees became discouraged. They may have left the hive in a body because the conditions were abnormal, or, as you suggest, the bees of some other colony might have completely robbed them out, so that they abandoned the hive because there was practically no honey left.

It is expensive business attempting to nurse a weak colony. We presume that beginners have more trouble because of having their colonies too weak than from any other source.—Ed.]

I raised 100 daughters from a fine breeding queen which I bought last spring. I hope she will live another year. I have 200 colonies, and have handled bees for many years, but they are the first bees I ever saw that wouldn't sting. I handle them without smoke.

Freewater, Ore., Nov. 16.

C. A. McCARTY.

A BEGINNER'S EXPERIENCE

BY B. KEEP

Like so many others, I began beekeeping by chance. My good wife often suggested how nice it would be to have some bees; but after reading "Quinby's New Beekeeping" I could not bring myself to the point of assuming the responsibility and risk. After eleven years on the new place, chance put it upon me, and, presto! shortly I became devoted to bees, and I could not get enough.

A small swarm discovered near the close of a drizzly Sunday in May was the germ; and the trifling knowledge gained years before from Quinby enabled me to get the bees into a small box, and to place it where the colony was to remain. We often talk of that first experience, remembering with amusement the excitement caused by the discovery, and the subsequent hustling for a box, some kind of veil, and a pair of thick winter gloves; then all hands standing at a respectful distance holding breath until "the trick was turned." I would not forget it if I could. So much interest has not been bestowed on any bees since that first swarm. It was a common occurrence to find some member of the family standing or seated near the hive intently watching the bees go and come, and often all were gathered there discussing the mystery of the hive and the possibility of honey from our own bees. I was thoroughly captivated. The responsibility and risk sat far more lightly upon me than I had supposed, and no nightmares with bees in any form troubled my repose.

I determined to learn all that books and periodicals had to offer, and to be as far as possible a scientific beekeeper. To that end I got a copy of the latest A B C and X Y Z, and devoted all spare time and evenings to the reading and rereading of every subject. In fact, I made a study of it. There was a fascination about every thing. Then I branched out into Langstroth, Miller, Alexander, Doolittle, Townsend, and Cowan, and devoured GLEANINGS, the *American Bee Journal*, and *Review*, not to mention all the pamphlets available. By these means I gained views on beekeeping from various points, and began to consider a system for managing my embryo apiary.

But, to return to my story. That first season stands out as including more experiences and a greater variety of ways for the acquiring of bees than ordinarily come to the beginner, even after many seasons. My first was a swarm, the swarm. The next came by purchase (this colony contained a

\$2.50 tested queen, and it has been my very best to the present moment, having given three frames of sealed brood and over 90 pounds of extracted this season. The queen was superseded the second summer). The next was a swarm, caught by my son. The next was a two-frame nucleus from No. 2. The next was chiseled out of a hollow tree in the middle of a hot August day. The next (the sixth and last of that first season) was a cluster of the field bees not captured with the combs and bees from the hollow tree two days before. Owing to inexperience and a strong desire for more bees, these were not united, but both were carried through the winter successfully. The queen having been lost by reason of inexperience, each "swarm" was supplied with a new queen.

Through all that season's campaign each member of the family became initiated by at least one sting, I myself taking no more than four degrees.

That autumn I made jackets of old carpet which were slipped over each hive body and then wrapped with an asphalt roofing felt, which was held closely by string and tacks. That season is recorded as "the worst ever;" but having fed liberally, all came out the following spring in good condition.

The number was increased to ten the second season by divisions and one swarm. That one swarm came out with a virgin queen. Fortunately I was at home, and with the aid of a hose I secured them without trouble. Seven young queens were found running around in the old hive, and many queen-cells in all stages, but no brood and but little stores. One supersedure and a colony queenless in October, together with some experimenting, made up quite a program. That was also a poor season, so there was yet no surplus, and some feeding was required. The same winter arrangement was used, and all came through in good condition.

This spring I began to make the hives over with double walls. They are now all double-walled, six with the old $\frac{7}{8}$ -inch hive-body having a space of about $\frac{5}{8}$ inch. Some were packed with mineral wool and others with sawdust, all having $\frac{3}{8}$ -inch outer walls. Four are regular double-walled with deep slip covers. All have three to five inches of sawdust on top. I use super covers all the year through. All have two-inch rims between the bottom-board and hive body, and eight-inch winter-entrance boards, which were described and illustrated in the Sept. 1st number of GLEANINGS.

Continued on page 28



By Boulder Creek.—Photo by Wesley Foster. Along the streams the willows, maples, and cottonwoods are the first to gladden the bees with offerings of pollen and honey.

EDUCATION AND THE CAMERA

BY WESLEY FOSTER

[Few have realized that our department editor from Colorado is a picture-lover. He is not a kodak fiend who snaps every thing and yet makes no real pictures, but an enthusiast who sees the beauties of nature with artistic eyes, and who is able, by the aid of his camera, to make permanent what he sees.

We give place to this article here, not so much because it will be a help to beginners in beekeeping, but because it will serve as an introduction to several other beautifully illustrated articles by Mr. Foster, to appear in the near future, that will make beekeeping more intelligible to beginners and more interesting to all.

The cover picture for this issue, "Nature's Own Parking," is the third photograph submitted with this article.—ED.]

If some educational dreamer had arisen twenty years ago and advocated the introduction of picture-taking as a part of the school curriculum he would have been laughed at; but to-day we already have the dark-room along with the laboratories in our modern schools.

The old idea about picture-taking, stereopticon entertainments, and such like, was that they were merely diversions, while now it is recognized that we learn quicker and retain longer what has been absorbed in an atmosphere of pleasure. And in every village, where there are camera "fiends" I hope they will lay the matter of a picture-

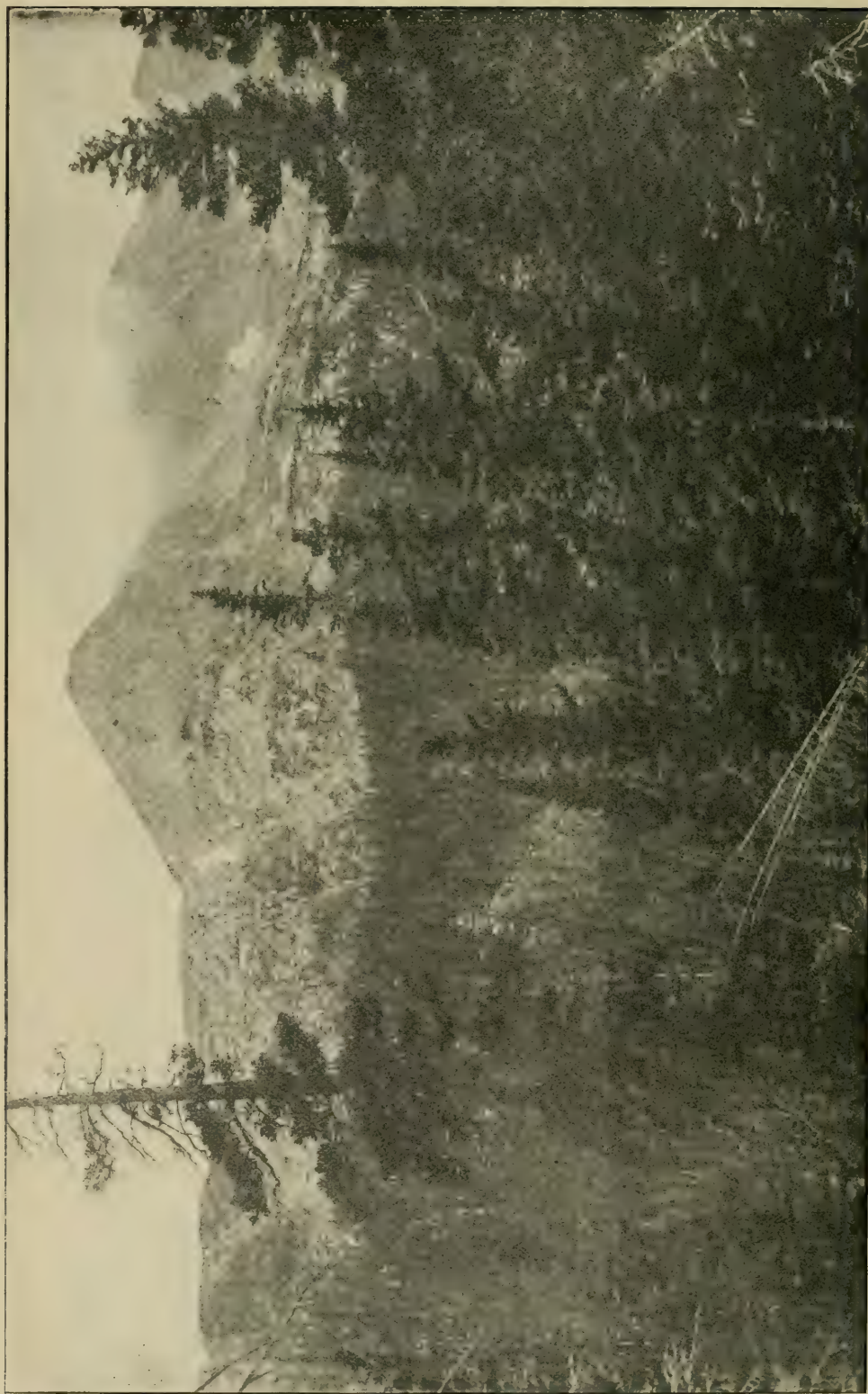
making studio before the school board when a new building is to go up or an old one remodeled.

The camera will be an aid to all other studies—the mathematics of correct exposures, the chemistry of development, the botany and geology shown in the pictures, and the cultural development from the study of composition. You can well nigh get an all-round education with your camera.

Nature is the mother of us all; and any means of getting a closer view of her workings should be eagerly seized. The camera will fix the various phases of nature indelibly in the mind, and be a constant source of pleasure to the possessor of the memories of the walks in the fields, together with a pride in the pictures taken.

Awaken the spirit of observation, and the world increases in interest. The weeds by the roadside, with their seed-pods held high above the snow in winter, furnish the birds with their winter food. Stop in your walk and watch them getting their dinner. If your camera is along, take a picture. What kind of birds are they? If you do not know, the work of taking the picture will give an opportunity to note their markings and characteristics, so that, when at home, they can be looked up.

Take a walk through the woods in the



"The Majesty of the Hills."—Photo by Wesley Foster.

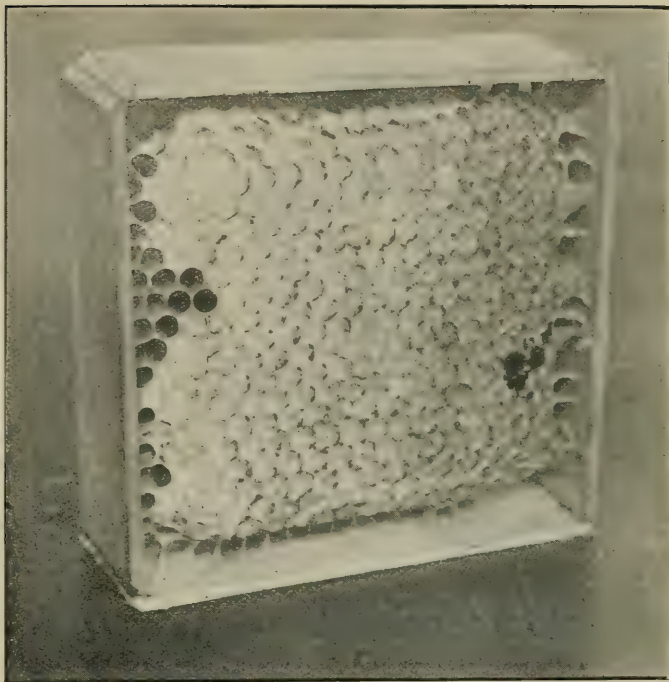
fall. There before you is a side hill down which the road winds into the valley and across a bridge over a creek in the valley. From among the trees is disclosed the outline of a house, smoke rising from the chimney.

To the ear comes the dog's bark, and the familiar farmyard sounds of cattle and chickens. There is a picture with road and hillside for a foreground, and the road leading the interest right up to the farmstead; and as the feeling of content wells up within, you will almost instinctively find the spot where you can express the spirit of the scene by eliminating most of the irrelevant things in the landscape. But few things need to be shown — the farmstead and the naked trees with the road and bridge leading up to the house. What is desired is balance in the picture—not all the light or shade on one side or the center of interest placed right in the middle. Have it a little above or below and to one side of the center. What is essential is that you feel the meaning, and the results are sure to be better than if pictures are made hurriedly. The scene is a beautiful one, and you should absorb the impressions along with the film.

The technique of making correctly timed exposures is nearly equal to mathematics for mental drill. The animation of the camerist dispels the thought of drudgery. With a R. R. lens the bulk of my exposures are made in 1-10 second stopped down to 32. I vary this according to the light, and have fair success in getting landscapes. I do not like to take many pictures in the brightest sunlight, preferring some clouds, for softer tones seem to be the result.

An expensive outfit is not necessary. A six-dollar camera taking some of my best pictures was the one that got me interested in taking pictures. A medium-priced camera is the best to start with, and a better outfit may be bought later on.

At first it may pay to take the films or plates to a photographer for developing



"Fools not all dead yet." The section shown in this illustration was folded inside out; and although the corners broke it held together long enough to be put into the super, and then the comb held it together.

and printing. If he is talkative you will soon learn points that will help in doing this work yourself. The catalogs and booklets sent out by the photo-supply dealers will soon give one a good working knowledge if they are studied.

Composition is the whole thing in picture-taking. Some say it is all in the lens; but the best lens will not make a picture out of a piece of landscape if the elements that make up a picture are not brought together in right relations on the film. The cheapest of lenses will make a picture if the limits of the lens are taken into account.

Camera catalogs warn against taking pictures with the lens pointed toward the sun; but by shading the lens from the rays of the sun, atmospheric effects can be obtained that are hard to secure any other way.

"By Boulder Creek" was taken with the camera facing the sun, shading the lens with my hat. The feeling of spring is there; the buds are just opening, and the bees are getting their first pollen. Boulder Creek has not yet begun to rise from the melting snow in the mountains. There is not the detail in the shadows that I should like; but being only an amateur I have not learned how to make a picture more attractive after it has been taken. "Majesty of the Hills"



Colony of bees transferred from the wall of a garage to the hive shown.

shows the mountain forests and the timber line, the peak shown rising to an altitude of about 13,000 feet. A cloud hangs down over one of the peaks. The pine-laden canyon is nearly two miles wide; and as I focus my camera the pine squirrels and bluejays are scolding each other in the trees, while the water-ouzel fishes for bugs and worms in the stream, faintly heard in the canyon's depth. We rejoice that we can keep these memories fresh with the lens and plates of our camera.

Boulder, Colo.

BEEES THAT WORKED IN THE RAIN

BY FRANK S. LOCKE

I am sending a picture of a very remarkable colony of hybrids—at least they appear so to an amateur such as myself. I know that I am working at something a little out of my line; but the study has become so interesting to me that I shall have to be tolerated by those who think me over-enthused.

I am a chauffeur by profession, and an ardent admirer of the A B C and X Y Z of Bee Culture, to say nothing of GLEANINGS. I spend six months of the year in the

country; and during the early part of this summer I was attracted by a swarm of bees which were making the air merry about my garage. I started the motor of a six-cylinder car, making much noise, and was finally rewarded by seeing the mass cluster on a tree near by. I knew absolutely nothing of bees or their habits at the time, but made up my mind to ascertain a few things on the spot myself. I shook the swarm into a box, then transferred them to a hive later. They made a break a few days afterward because I moved them, not knowing any better, and absconded for parts unknown, but my interest did not go with them. I looked at the hive (quite empty now), and found that I had only a small piece of comb, seven frames with starters, and last, but not least, a keen desire to see those little rascals busily engaged again. Therein lies my tale.

You will see in the photograph a window, at the upper left-hand corner of which was the flight-hole of a stray colony that had been there for three years. Lower down, near the entrance to the hive, you will observe an escape which I manufactured from a tobacco-box of tin. A fine spiral spring did the work. Before putting on the escape I nailed screen wire over every available

exit they might find, then cut a small square hole lower down, over which the escape now lies. In two days every bee in the house was using my new hole as an entrance; then I put on the escape, placing my hive in position at the same time. I do not know how the Porter works; but I must say the bees simply fell through this one of mine. They just crowded one another out through this spiral spring flapper I made. Any bee that once crawled into the tin was forced bodily out. I can move the flapper out by blowing on it, but it opens out only. No bee ever crawled back.

Now for the queer part:

Those bees accepted a hive without eggs, bees, or brood. They had foundation starters only. They built comb, filling it with honey. There were no laying workers among them, and no queen, as I ascertained later, before introducing an Italian queen.

They were three weeks without a queen, and simply went crazy with joy when I gave them their new mother. She was of good quality, laying on the second day after coming through the mail. They start at daylight, working like mad, and I can say in all sincerity that, during the past two days, those same bees have been flying at work in a steady rain which has left large puddles everywhere one looks.

The whole business looks queer to me as they come in all wet with their wings spread wide as they walk—no stopping them. I wish I had about 100 colonies of such bees. I'd stop driving automobiles.

San Mateo, Cal., Sept. 7.

BEES BUILDING WORDS IN COMB HONEY

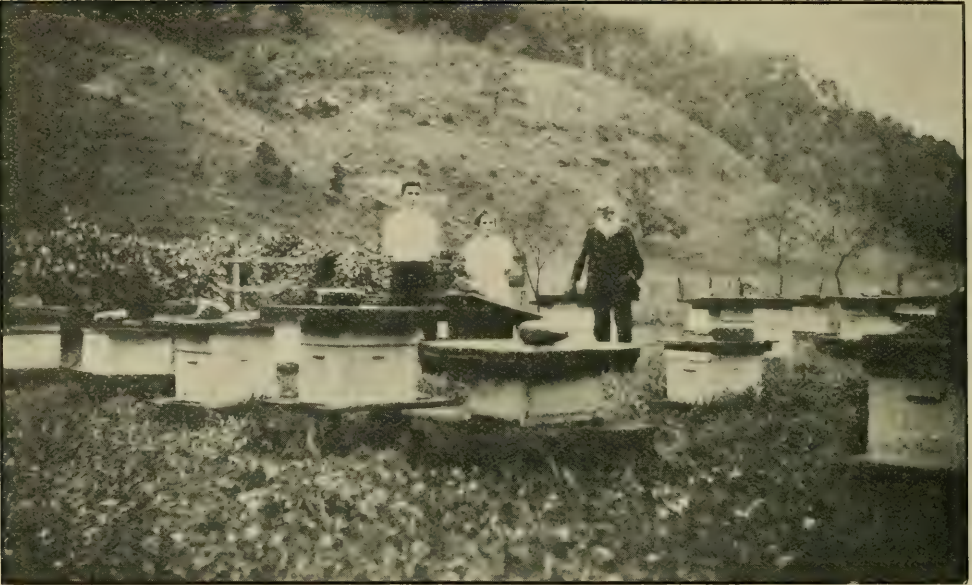
BY I. HOPKINS

In the August 15th issue, page 515, you ask for articles on the method of making the bees build letters in comb. The accompanying photo shows the words "State Apiary" built by the bees we had in the government model apiary, established a few years ago at our international exhibition. The body of the photo is an exhibit of a portion of the honey raised at the model apiary; but owing to the photographer not using a color-screen on his lens the amber-colored honey in the glass jars came out black like ink.

The case over the exhibit contains the words mentioned, in comb honey. The case was nine feet long, and the words occupied a length of nearly eight feet. At each end of the case is a bell glass filled with comb honey, built by the bees also. Each letter



New Zealand Honey Exhibit. The words, "State Apiary," were built by the bees in comb honey.



James Woodzell, Webster Springs, W. Va., and his apiary of 38 colonies. The shade-boards are the covers of winter cases made from coffee-boxes.

was eight inches in height and two inches broad in the stroke.

HOW THE LETTERS WERE ARRANGED.

First of all, I made frames one inch wide out of quarter-inch stuff, similar to brood frames. I then obtained some bare half-inch well-seasoned boards, screwed them together, and cut them to fit the frames. They were then handed over to a man having a fret-saw, to cut out the letters right through the two boards. Each frame afforded space for two letters. The boards were next taken apart, and a sheet of foundation laid between the two boards, and the latter screwed together again. Now, the only places within the frames the bees could build when they were in place was where the letters were cut out on each side of the boards.

HOW TO GET THE LETTERS BUILT OUT QUICKLY

The quicker the letters are built, the better appearance they will have. For this purpose, choose extra strong two or three story colonies, and see that the queen is confined to the brood-chamber with an excluder above the frames. Place a couple of frames of lettering in the center of the top box immediately above the brood-chamber, with one frame of comb between, and remove them directly. The comb in the letters are capped over. The lettering should be done when the honey-flow is fully on. My first attempt was made over thirty years ago.

Auckland, N. Z., Sept. 16.

WINTER CASES MADE OF COFFEE-BOXES

BY JAMES WOODZELL

The picture shows a corner of my apiary of 38 colonies, all of which are in eight-frame dovetailed hives. Grapevines on three sides, and a wood-house and dairy on the other side, give considerable protection from cold winds.

I winter my bees on their summer stands. I take coffee-boxes, such as are used for Lion's or Arbuckle's 100-lb. packages, and cut off the bottoms and tops. Then I cut out three inches from the bottom of one end and nail the piece back in such a way as to make a shelf over the entrance. I set this prepared box over the hive, and thus have about three inches of space on all sides, and nearly as much over the top, which I fill with hay. The tops and bottoms of the boxes make the covers, which are used in the summer for shade-boards as shown in the engraving. I nail four pieces of narrow boards together, making a framework on which are nailed the top-boards of the coffee-box. Then I cover the whole thing with cheap felt roofing. These covers telescope over the winter cases. By using these cases I have had very little winter loss.

My hive-stands are made by nailing ten-inch legs on a square framework made of four narrow boards, and covering this with one-inch boards for a top.

For my surplus honey I use shallow extracting supers, and cut the honey from the frames in four pieces, weighing approximately one pound each. I have no trouble in disposing of all of it at 20 cts. per pound.

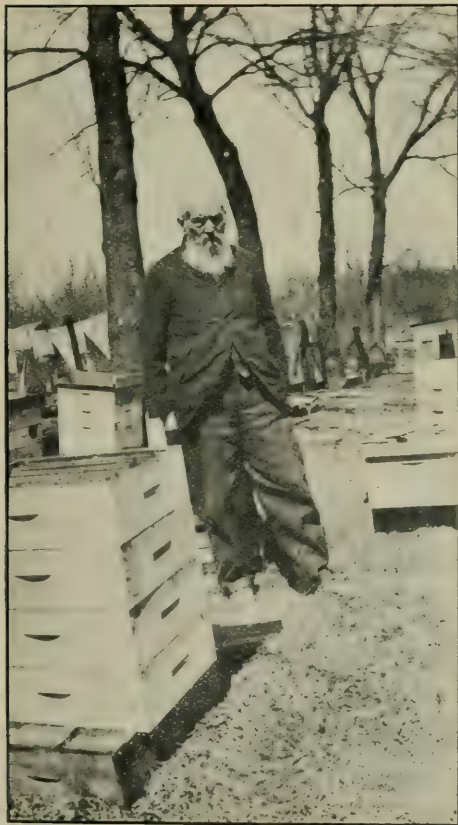
Webster Springs, W. Va.

GRANDPA NICKEL

BY MRS. MARY ROBISON

I am sending you a picture of grandpa Nickel, a dear lover of GLEANINGS. He is very much interested in all of its articles, especially in the Temperance and Our Homes departments. He is a retired farmer, and keeps a small apiary for pastime and pleasure. His honey, of which he always has a good supply, he divides among his children, grandchildren, and friends. He does not know I am sending his picture, and I want to surprise him. Grandpa Nickel is my father.

Concord, Ill.



Grandpa Nickel among his bees, Concord, Ill.

EXPERIENCES OF A FOUL-BROOD INSPECTOR

Different Types of Beekeepers Met

BY J. E. CRANE

Continued from page 815, Dec. 15.

There is reason to believe that there are some persons who are not fond of seeing an inspector. One man told me that last spring the cattle commissioner condemned and killed most of his cows, and now I had come to kill his bees, and he seemed to feel as though his lot were a hard one.

A good lady was afraid the inspector would open her hives and set the bees to robbing (as no honey was coming in), make them cross, and that they would sting the domestic animals and even poultry, causing any amount of mischief. She reasoned well, only she did not know the inspector. (One man told me that last year he lost 75 turkeys by the bees stinging them to death. I can not vouch for the truth of his story; but I think there may be some truth in it, as I believe his bees were the crossdest I have ever seen.) But there was no disease among this woman's bees. On the contrary, I found that her hives had had the nicest care, and her surplus combs were the finest I had seen anywhere. I have sometimes thought that beekeeping is not adapted to women, nor women adapted to keeping bees; but since I have seen the success of this woman, and of others whom I might mention, I have decided that it might be well to revise my opinion on the subject.

One woman went with her husband to look over the bees on a hot summer day. He had on a thick coat, gloves, and veil to protect him from stings, while she walked around fearlessly with bare hands and arms.

Still another woman, the mother of five small children, I found helping her grandfather, who was eighty-three years of age, and nearly blind, caring for a large yard of bees. With me she looked through the entire yard to find any diseased colonies. She told me she was in perfect health, and enjoyed the outdoor life.

An inspector has many opportunities to receive as well as to give instructions. In going around among all sorts of beekeepers he finds many persons who excite his pity or sympathy. One of these, an old man with a farm and a few bees, appeared feeble, and had but one hand. I have seen many one-armed people, but never before one that appealed to me as he did. How could he care for his bees with but one hand? I often find myself wishing I had three when I am working with them.



Beekeeping as taught in some of the rural schools of England.

One woman whose bees I went to inspect lived in an old house. Her clothes were in rags, and were thrown carelessly upon her person. Her house was in the utmost disorder. She seemed to think I had some sinister motive in asking her name, and would not tell me. I have since wondered if some Christian woman could not go to her, carrying some of the comforts of life, and take her hand and tell her that the good Lord loves and cares for her, and bring some light, cheer, and hope into her desolate abode.

And yet another. His neighbor carried me over to see him, and told me on the way that he was somewhat cranky. On reaching the place he introduced me to him. I offered him my hand, which he refused, saying, as he drew back, "I don't know you, sir." As I looked into his face and saw the wild, strange expression, I recognized that he was insane. Yet he was living alone, caring for himself. He had a good garden, and one of the largest yards of bees in the town. I suggested looking at his bees. He told me it was unnecessary. He knew all about bees, and said that they had no disease. Nothing I could say would convince him; but I admired his large patch of fragrant onions without a weed; his thrifty turnips, and his potatoes so free from beetles. He slowly relaxed; and while his neighbor engaged him in conversation on the value of different varieties of potatoes I managed to look into several of his weaker colonies where disease would be most likely to show itself if present. When I was ready to leave he bade me good-by with a hearty hand-shake, and asked me to come again. How sad to see the marvelous mechanism of the human body so disordered as to give the mind distorted thoughts and views of life!

A LARVA FOUND WITH ITS HEAD AT THE BOTTOM OF THE CELL.

In looking over brood constantly for disease I have found that one becomes more observing, and sees some things he never saw before. Last winter, in giving a talk on bees before a Young Men's Christian Association meeting I told them that in all my experience I had never known a young larva to spin a cocoon and to change from the larval state to a perfect bee with the head toward the bottom of the cell, possibly because larvæ instinctively sleep with their heads in the direction of the mouth of the cell, ready to walk right out when mature. This season, however, I saw one such case, and I had the pleasure of helping the little witless thing from its cell, rear end first.

I wonder if it will know enough when it gets to work to come home when it rains.

ANOTHER BROOD DISEASE.

There are diseases that afflict the larvæ of bees, other than foul brood; and I have been surprised to find how general one of these is. It seems to be everywhere; and, while not very destructive, it should be studied, and, if possible, some remedy found for it. I sent a sample of it to Washington, and was informed that I need have no anxiety about it. The disease seems to kill the larvæ after they are sealed up, and at almost the same time, as they all look alike when the cell is uncapped. These dead larvæ do not decay in the cell as those do that die from American foul brood, but retain their form, and seem to dry up when they are removed by the mature bees. I observed it several years ago, and in some cases it was very bad—almost every larva in large patches dying, and then it would disappear and I would scarcely see a cell of it for two or three years. While it is not so bad as foul brood, the loss in the aggregate is considerable.

SHAKING INTO A BOX FIRST.

I have noticed that, as a rule, the advice given to beekeepers who have foul brood is to shake their bees upon frames, these to be taken away in four days, and a clean hive given them. After a little experience I have advised shaking into the brood-box or any other box for the first time, and after four days giving frames of foundation. This has seemed to work well, and I have failed to hear of a single case where disease has reappeared because the old brood-chamber was used without being disinfected or burned out. It seems well to make it just as easy as possible, within the bounds of safety, for beekeepers who have diseased colonies. I have been more careful with inexperienced beekeepers than with those of more experience.

Middlebury, Vt.

To be continued.

BEEKEEPING TAUGHT IN PUBLIC SCHOOLS

BY JOSEPH TINSLEY

In GLEANINGS for Nov. 1 I notice Dr. E. F. Bigelow refers to his experiment of teaching beekeeping to boys who, he says, are the sons of wealthy parents. I am pleased to inform your readers that we in Staffordshire are a great way in front of this. We have actually ten public elementary schools where beekeeping forms part of the school curriculum. The schools selected for this experiment were purely rural

ones, situated right in the heart of the country, and are naturally attended chiefly by sons of agricultural workers. Such teaching is bound to bear fruit in time, whether at home or abroad; and now we have made a start I anticipate the whole of the schools in rural districts will be drawn to adopt a similar course of study, and in time beekeeping will form the syllabus of every country school.

The photos will explain themselves, and were all taken at one particular school at different times of the year. The first four photos have previously appeared in that excellent little journal, *The Beekeepers' Gazette*, but I have Editor Digges' permission to utilize them in this direction, as it is not often that we are in front of our cousins across the water. The remaining photos have not previously appeared in any paper.

You will naturally ask how beekeeping came to be taught in the schools at all. It was chiefly due to my own personal representation and to the good work of our association (though at the same time I must admit that the education in this country is undergoing a vast change, particularly in rural parts) that the Staffordshire Education Committee agreed to the experiment. The difficulty then presented itself, how could the schoolmasters and mistresses teach the subject, not knowing it? Such obstacles can be overcome, and they were overcome by my giving them a series of lectures and demonstrations; and here let me remark that it was not only an easy task, but a very simple one. Highly trained men and women can be taught a subject, or, rather, the elementary portion of it, in a very little time. They are apt pupils; and when I explained the anatomy the enthusiasm for the subject was apparent.

I need scarcely say that the children exhibit no fear at all. The trouble is to keep them back. Each school is supplied with two up-to-date hives, with accommodation for the storing of 60 lbs. of honey, two stocks of bees, ten veils and a smoker, while there are extractors and honey-sieves to go from school to school. The children are thus educated in all the various branches. We already see some results by parents of the children buying a hive of bees instead of the pet rabbits, cats, pigeons, etc.

The educational feature has been a great success, and the financial side has also been satisfactory, one school having made \$15.00 from the sale of honey from the two hives.

At one school, where the schoolmaster has developed rapidly into a first-class beekeeper, an observatory hive was fixed in the school window, and this has proven an ex-

cellent educative feature, the children being able to observe the bees at work in every detail. It is intended to fit more schools in a like manner in the future.

The children are taken to the colonies, and a practical lesson is given, according to the time of the year. The scholars then write, unaided, an account of the lesson, thus marshaling their thoughts and setting them down on paper. These are very cleverly done. At some schools the girls are instructed in cookery, and these girls are taught the art of making bee foods. Woodwork is another subject that is being taught, and here also the boys are instructed into making articles for the apiary, thus making the subject doubly interesting and practical.

A profit-and-loss account is kept in all the schools by the children, thus enabling them to be keenly attached to a subject in which they have a personal interest.

Stone, Staffordshire, England.

HOW I STARTED BEEKEEPING IN A LARGE CITY

BY ALBIN PLATZ

On July 6, 1908, I started my career as a beekeeper on a small scale, engaging in the pursuit principally for the recreation it affords, and to keep myself and friends supplied with the finest and purest of all sweets—honey. I bought my first colony on the evening of the day mentioned, paying \$5.00 for it, which also included all fixtures, such as queen-excluder, super complete, etc. The day was exceptionally hot and sultry; and in order to confine the bees securely while they were being transported to my home the beekeeper of whom I bought them nailed a piece of wood over the entire entrance, excluding all air. They were thus confined over three hours, and I have often wondered why the combs did not melt down and the bees smother. However, no such thing happened, and I received them in first-class condition. During October of the same year I purchased my second colony of a woman in the eastern end of Cincinnati, for \$3.50; and from this colony I raised my best stock and queens. I bought both of these colonies too late in the season for them to store any surplus, but they went through the winter in fine shape and were exceedingly strong in bees in the spring.

Now, thought I, having read all of the literature on bees I could get hold of during the winter, and knowing it all theoretically, I can not fail to harvest a nice crop

of honey; for every thing presaged a good honey year. That was in 1909. But I was sorely disappointed; for not only was there no honey, but, on the contrary, I had to feed the bees to keep them from starving. That made two years of failure to start with—somewhat discouraging for a brand-new enthusiast.

Naturally I had to stand a good deal of chaffing and ridicule about this time, and many advised me to give it up, saying that it requires an expert to make bees produce honey; and, moreover, they never would store any surplus in the city where the pasturage is so limited. "Give me one more year," I said; and if the third season would prove a failure I would acknowledge myself beaten and throw up the sponge, so to speak. Well, the spring of 1910 rolled around, and I increased my two colonies to four by dividing. Fruit bloom and locust yielded nicely, and then came white and sweet clover; and with the latter, lots of honey. I had two swarms, and harvested almost 300 lbs. of honey, besides saving almost 50 lbs. in sealed combs to use for feeding if necessary. I sold my entire crop for 20 cts. per lb.

Every thing looked rosy to me now, and I made great preparations for 1911, intending to increase my six colonies to a dozen or more, and to increase my honey sales. But a fine surprise awaited me. One morning in early June, while examining my colonies I was shocked to discover American foul brood in one of them. I immediately sent a sample of diseased brood to Dr. Phillips, at Washington, and he told me the bees had American foul brood, and gave me instructions for treating it. Before I had his reply, however, the other colonies became infected, two of them being virtually rotten with the disease. Here was a fine state of affairs. No honey was coming in, and foul brood to fight! Well, I prepared six clean hives with full sheets of foundation, and gave them the McEvoy treatment, shaking some in the morning and some in the evening; and in no case did the disease reappear. It was cured completely; but the cure cost me over a hundred fine brood-combs and about 150 lbs. of sugar. Thus ended the season of 1911.

After having survived the most severe winter (1911) in forty years my bees came through in fair shape for 1912—no loss, although the average mortality was over 75 per cent. By swarming and making a few nuclei I increased to eleven colonies, and secured 415 lbs. of honey. I produce only extracted, and it sells readily for 20 cts. per lb. My best colony of Italians stored

155 lbs.; and my worst, a colony of Banats, 37 lbs. I have two colonies of goldens; and while they are good honey-gatherers, they are also great robbers; and after the honey-flow is over it is almost impossible to keep them under control. I had one case of robbing this fall, and carboic acid had no effect on them. As for the Banats, no more for me. They are extremely excitable, poor comb-builders, great stingers, poor honey-gatherers, and it is next to impossible to find the queen in a populous colony. All things considered, no strain can compare with good Italian stock. They are gentle, and by far the best workers.

Before I close I should like to give a few pointers to beginners. Adopt the ten-frame hive and stick to it. Don't practice stimulative feeding in the spring. Keep the best strain of Italian bees. Use absorbent cushions in wintering (not sealed covers), and don't tinker with the bees too much. By reading GLEANINGS and keeping a copy of the A B C of Bee Culture at hand, the theoretical part may be acquired to perfection. The practical part will naturally take care of itself.

Cincinnati, Dec. 12.

A SCHOOLTEACHER'S EXPERIENCE WITH BEES

BY V. ROSS NICODEMUS

The shades of night had already fallen when I arrived at the old beekeeper's stand, three miles from home. He expressed his doubts as to whether I could get my colony home; but I assured him that, if he would get it ready, I would run the risk. I had not gone far on my homeward way before I saw the reason for his doubts. The little box which served as a super jolted loose, and at every chuck in the road threatened to release the prisoners. I soon fixed this, however, by sitting on the hive; and, driving old Dobbin at a brisk trot, I arrived safely home without becoming aware of a single bee getting through the cover board.

Later I bought two more colonies, one of which died before spring. Every day when I returned home from a strenuous day's work in the schoolroom, I would slide the lid of the hive to one side and peep in just to see how the bees were getting along. This first colony I transferred to a modern hive. Later I clipped the queen's wings—too closely, perhaps, for she died soon afterward. In June I purchased two two-frame nuclei of goldens, and put them into new hives. I thought I was getting along nicely in the land of beedom. Little did I

know that my birchbark canoe was drifting down the stream instead of up.

The summer of 1911 here was poor, as it was in so many other localities. In September the bees almost starved, and no honey, although I had two supers on one hive all summer. I fed enough sugar to last them over winter. When winter began I had fine colonies; and when spring came I had none.

Not dismayed, however, I purchased another, and, profiting by my experience of the past, I was able to increase from one colony to six by buying some queens and a nucleus. I now have six, and secured about 40 lbs. of honey. This amount has cost me no small outlay of money, and a greater amount of time, and a few stings; but the experience that I have gained, and the pleasure I have had in working with them have amply repaid any deficit on that score. I shall try again.

Henrietta, Pa.

SOME EXPERIENCES IN LEARNING TO KEEP BEES

Reading Necessary as well as Practice; Clipping a Leg as well as a Wing

BY W. M. SHIELDS

My first experience with bees was with a colony of blacks which some one had advised me to winter in a hole in the ground. The hole was lined with boards in order to avoid dampness. The hive was put in and covered over with boards and earth, all being done according to directions given by my neighbor. When opened in the spring the hive was floating in water, and the bees were dead.

The same neighbor, by way of encouragement, offered me another colony at half price. I bought it, wintered it in the same hole, first taking care to put in a drain. This hive, when taken out in the spring, was covered with white mold, but it contained live bees.

For some years, through lack of knowledge of bees and their ways I never got beyond three or four colonies. I read much about bees in various papers, but the articles happened to be written for those who already knew something about them, and generally left me in a rather muddled mental state. Later I bought the A B C of Bee Culture, Langstroth on the Honeybee, and subscribed to GLEANINGS. It was after looking into these books that my interest in bees took a start. Then a two weeks' course in apiculture at Guelph kindled my interest into a flame.

My original colony was in a home-made unpainted box with fixed frames. I had, however, gradually changed to the eight-frame Langstroth hive, and last spring I changed to the ten-frame Langstroth. With these standard hives I purpose to stay.

I read and reread bee literature during the winter; and when spring came I very naturally felt that I knew all about bees. I knew just what I should do and what I wanted to do. My three colonies had been wintered in the house cellar, each one in a box by itself. When taking them out in the spring, one hive slipped and slid about on its bottom-board, and the bees came out in thousands. That was the first event.

Then I discovered that one colony strong in bees had no honey. What should I do? My reading came to help me in a jumble of "avoid spring feeding," "Boardman feeds freely in the spring," "better not to have to feed at all." I *had* to feed—no doubt about that; but how much or how little I could not remember, so I had to go back to my A B C book.

I knew, or at least I thought I did, all about clipping queens' wings, and knew how to find a black queen; for hadn't I read Doolittle on the subject until I could say every word? The colonies had been out of the cellar a day or two when a growing anxiety about these wings led me to try things *a la* Doolittle. My wife thought she would like to help me. The day was cold and windy, so we took a folding screen from the house to shelter the hive and ourselves, and then began the hunt. We had transferred the frames, and hunted the hive several times, when my wife ventured the remark that perhaps Mr. Doolittle was joking (I had been quoting parts of his article to her). It was no joke, I thought. At last my wife said, "Look! I believe that is the queen." In the excitement of trying to see a queen for the first time, our heads bumped. Our straw hats were knocked awry, and we lost sight of her. After a while she was found, and we clipped her wings. It will be well, perhaps, not to dwell on the furious bees we had that day, and, in spite of veil and gauntlets, on the stings we both got. I know now, of course, that, although it is a very good practice to clip the queen's wings, we had no business poking about a hive on such a cold day nor so early in the season on such an errand; but when a fellow is *sure* he knows all about it he is apt to overlook some details and forget to put two and two together.

Then a bulletin on foul brood, and the need for Italianizing, came to hand. I had read about foul brood; but Italianizing

was something new. I had apparently skipped it in my reading. I looked it up, though, and sent off for an Italian queen. This was in June, I think, just when the colony was strong and fit to gather in a heavy white-clover honey harvest. The queen arrived, and we (the same two), hunted long for the black queen, found her and killed her, and also destroyed all the queen-cells we could see. When the hive was put in order again, and the cage with the new queen was in place and the cover on, my wife said, "Now, Willie, are you quite sure it was the queen that you killed?" I immediately began to think it wasn't the queen, for now I come to think of it, it was perhaps a drone. However, I said to her, "What is the use of making a fellow doubt his ability as a beekeeper?" Didn't I know a queen? It was the queen, though, as after events proved.

A week or two after that, we looked for her majesty, and it was very easy to find her among her black retinue. We clipped her wings; but in doing it we also took a piece off one hind leg—by mistake of course. Fortunately she has turned out to be a good queen.

Now, this bit of Italianizing was rather costly. I should not have meddled with the hive at the time I did, for the operation stopped the laying of eggs for some days, and made a very marked decrease in the working force. I got little or no surplus honey from that colony, when, by delaying the Italianizing until after the honey-flow, I might have had two supers of honey to extract.

These are some of the more serious blunders I have made while learning, and I console myself with the thought that we all make mistakes. I should like to say for the benefit of other learners that, time and time again, I have found the reading I did, and experience obtained in other ways, of much practical value. The reading enabled me to increase my apiary from three colonies to six, all very strong, and with young queens to Italianize all of them, and to extract 185 lbs. of honey. I do not think the business of beekeeping can be carried on successfully without considerable reading combined with practice.

O'Connell, Ontario, Canada.

[Occasionally beginners accidentally cut off a leg of a queen while endeavoring to clip her wings. As far as the queen herself is concerned this seems to do no great harm. although the bees sometimes supersede a queen thus crippled. Clipping is really very easy, but still, if there are drones in the hive it is well to practice on them first. —Ed.]

HOW TO LOAD HIVES OF BEES ON A WAGON

The Necessity of Thorough Preparation

BY ELIAS FOX

I have been reading the dangerous and hair-raising experiences of the two boy beekeepers in moving 30 colonies of bees 40 miles on a wagon, p. 688, Nov. 1, and I am prompted to write a few lines on moving bees by wagon or rail, as I think I have had as much practical experience as any one beekeeper. These directions will apply especially to strong colonies in warm weather.

First of all, they should be in good solid hives; and if not so, the hives should be put in the best possible repair. If the frames are liable to loosen and crowd together, nail each end with a small nail, or insert between each two, at ends, small blocks, and nail fast: then make frames of common rough lath to fit the top of the hives, and lay screen on top, and put another frame of lath on top of this, and nail down through into the top of the hives. If they are very strong, and the weather is proportionately warm, nail a comb-honey super on top of the brood-chamber, and fasten screen on top of this; and if the super is full of empty or partially empty sections it will be all the better, as it affords better clustering facilities.

Now comes the closing of the entrance. The majority of people close it by tacking screen over it, which is the poorest way of all, for this reason: If screen is tacked over the outside of the entrance, it leaves it open the full thickness of the lumber, and the bees sometimes crowd the entrance solid full, and are so heavily clustered over the inside of it that bees can not get back, and thus cut off practically all this source of ventilation.

A much better and safer way is to take strips one inch or even $\frac{7}{8}$ inch square, and cut proper lengths to nail on the front end of the hives, making a rim on either side and at the top; then tack your screen firmly to the outside of this rim and let it run down to the alighting-board and tack a strip of any light material across this, one inch from the entrance; then you have a cage the whole size of the front end of the hives (less the three strips), and the bees will be just as comfortable as it is possible to make them in confinement, with no probability of any harm coming to them.

Be sure to do *all* nailing before dark, excepting the simple closing of the entrance. Should any small unnoticed holes

show leakage of bees when loading, calk them tight with cotton batting. Take a good bundle of it along with you to use in the same way in case of emergencies which may occur.

Load the hives firmly on the wagon with a liberal supply of straw under them; and when all are on have plenty of $\frac{3}{8}$ -inch rope so that you can have one strand passing over the middle of each tier of hives. Draw as tightly as possible, and fasten securely. Then take more of the same size of rope and go two or three times around the entire load horizontally, and take one turn around each strand of body rope and draw as tightly as possible each time, and fasten securely, and I will guarantee with this method of preparation in loading, roping, and side lacing, that bees can be hauled for hundreds of miles without loss of a colony if you keep them supplied with water.

Union Center, Wis., Nov. 18.

ONE SUMMER'S BEEKEEPING

BY OPIE QUEUE

This is to be a little record of my first year's beekeeping, so I shall start with the very beginning and gradually lead up to the grand finale which will be—but then, that is anticipating.

I started by buying from a friend a ten-frame hive of beautiful gentle Italians at a cost of eight dollars. I also purchased one shallow super with frames and foundation, ready for use, which cost another dollar. The hive was placed nearly in the center of the half-acre of ground that I call my own. Here, in the shade of an old apple-tree, Mr. K., who had sold the colony to me, opened up the hive while I stood at a respectful distance from him. I was very much surprised that he used no protection whatever—not even a hat, and he was bald-headed at that. Yet not a single bee attempted to molest him, and so I became bold enough to come to his side and look on; and I, too, remained unhurt.

When all necessary work had been done, and I had been shown some frames of brood and bees and the super was in place, Mr. K. left and my career began. Now, I knew practically nothing of bees. I had never in my life been within a rod of a closed hive, and never, to the best of my knowledge, within a mile of one that was open. Quite naturally I felt some trepidation as to the outcome of my venture. Yet I was determined to learn all I could to succeed and to make my bees pay for themselves. To that end I sent for the A B C

and X Y Z of Bee Culture; also for numerous government bulletins and other pamphlets treating on bees. And while waiting for these to arrive I had every one who pretended to know any thing about bees tell me about them. It would have been better, as I was soon to learn, if I had first gotten my books and had studied them, and then bought the bees; also, if I had not heard quite so many people talk.

It was the middle of June. Day after day I went down to watch my bees at work. They were busy from the first, as I could see by their hurrying in and out of the hive. Moreover, a delicious aroma of delicate sweets came to my nostrils. The temptation arose within me to open the hive and to peer into it. Indeed, though I had neither veil nor smoker nor gloves, the temptation became so strong that I could not resist. At first I raised the telescope cover just a trifle. When nothing happened I slowly took it off. Then I partly drew off the oil-cloth cover. Again nothing happened. I drew it off entirely, laid my hands on the frames, took one out, then took them all out, and nothing happened. Not content with this I took the super off entirely, and drew some brood-frames out of the lower chamber; and all the while not a bee came near me. This was on the second day after receiving my bees. It was all quite natural. The bees, being very busy, were also very gentle; and I, being a novice and very timid, was very gentle, and that is why I got along so famously.

As to the condition of things within the hive, I was on this occasion very pleasantly surprised. The foundation in the super was practically all drawn, or in process of being drawn. Indeed, I saw quite a little honey in the combs. As the days went by, the super gained noticeably in weight. Seven days of beautiful weather and uninterrupted flow filled it completely. It had the weight of a box full of lead. I telephoned to a beekeeping friend in the city, asking for advice. He told me to get some more supers, frames, and foundation. I asked when the new super should be put on. He said that he generally waited till the combs in the first super were partly capped over.

The next day I got five shallow supers, 100 frames, two pounds of foundation, a veil, a smoker, and a pair of gloves. Having prepared one of these supers, I waited for a sign of cappings in the first super. Alas! day after day went by and I could not find a trace of cappings. The bees got lazy, and would not work. The brood-frames contained numerous queen-cells. These, as

I saw them, I religiously cut out. In doing this I was following a bit of advice that some one had given me. I did this daily until the fourteenth day after I had received my bees. On the fifteenth, confident that things were in a safe condition, I left home to attend a convention that was to last a week.

It was on Tuesday afternoon, about 2 o'clock, when I returned home. I found a great uproar within my household. My wife was pale and panting; my mother-in-law was half sick; and the farmer from the neighboring field sat on his plow, scratching his head. My bees had just swarmed and hid themselves to regions unknown.

I have always been by nature somewhat of a fatalist; and when I was confronted with this situation all I said, or at least thought, was: "Well, it's too bad; but then, if they are gone they are gone, and that is the end of it." One colony of bees I still had, so why should I lament about the other that I didn't have?

Now another bit, not of advice, but of ignorance, came into play. Where I received this information, or whether I received it at all, I am unable to say. At any rate, I was firmly of the opinion that it is not the old queen, but the young one that leaves with the swarm. I reasoned thus: The young queen left with the swarm, therefore the old queen is still in the hive. I found numerous queen-cells. But, I thought, if the old queen is here, what is the use of the queen-cells? Out with them! I didn't want any after-swarms.

And the result? Well, it was something like this: Every day I went down there and looked for eggs and brood. I found neither. Whatever of queen-cells those very foolish and very frivolous bees had the temerity to build, I forthwith cut out. After two weeks had passed by I began to get worried, and telephoned to Mr. K. "That's bad, awfully bad!" he said. He promised to come out the next day. He was true to his word. Moreover, he brought another hive of bees with him.

For the purpose of getting queen-cells we put a frame of eggs and brood from Mr. K.'s hive into mine. Then we waited for results. A week later, when Mr. K. came again, not one cell had been built. Looking over the combs we found eggs promiscuously scattered about in the cells. Instead, however, of being attached to the bottom of the cells as they should have been, they were attached to the sides. Mr. K. said: "Laying workers!"

We carried the hive about 60 yards away, and there shook and brushed all the bees

into a large patch of tall weeds. Then we returned the hive and frames to the original location, and gave another frame of brood to it. Several days later, when I looked over the hive, I found some more eggs. The laying workers were still present in the hive. By telephone I told Mr. K. of it. He came again, three days later, and brought a young queen with him. Again we carried the hive away—fully a hundred yards this time. We were careful to shake off every bee, both from the combs and from the hive. Having returned them we put the new queen, caged, into it. Mr. K. warned me not to go near it during the next week. When he returned we found that the queen had been killed. Moreover, we still found the eggs of laying workers. What is worse, there was not a drop of honey in my hive, and thousands of dead bees lay scattered about—a case of robbing. Worst of all, Mr. K. discovered traces of American foul brood, not only in my hive, but also in his. You have probably heard of that cataclysm when thunder struck the toad! A very thrilling sensation, to be sure! I can sympathize with the toad.

Mr. K. was much worried. He had had the disease in his apiary the year before, but thought it was cured—indeed, had been sure of it. He immediately proceeded to treat the hives. There was but a handful of bees in my hive, so he broke it up entirely, burying the diseased combs (there were only a few of them) and putting the others into his own colony, from which he likewise removed combs on which he could find the disease. He was sure that he would thus get rid of all trouble. I was not quite so certain of it. Indeed, after I had thoroughly gone over the matter in my books and pamphlets I was certain that he would not succeed. And he did not. As the weeks went by we buried comb after comb, giving in their place frames of foundation. About the first of September Mr. K. thought the bees were free from disease, and so brought another colony out. He expected a fine fall flow of honey. Half of all that would come in was to be mine. But there was no fall flow, except barely sufficient for wintering.

In spite of all this, however, I managed so to manipulate that I was able to credit my bees, though they were dead, with some profit. Here is where the grand finale comes in.

Mr. K. invited me down to see him extract his crop of honey. I was glad to go. When he had finished he put up twenty pounds of fine white-clover honey and insisted on my taking it home with me. I thankfully refused. Mr. K. is an Irishman.

A BEGINNER'S EXPERIENCE

BY B. KEEP

Continued from page 12

He persisted in insisting. Finally I yielded. In the evening I took my big bee-ledger from its little pigeonhole, and using a magician's wand, most solemnly put down on the credit side of it:

To 20 lbs. honey at 15 cts., \$3.00.

Thus had I a clear profit of \$3.00 from my first year of beekeeping.

And now, my fellow-novice, I will have the temerity to attach to the above a small appendix.

Never fool with bees when you don't know any thing about them.

Never fool with bees when you know just a little about them.

Never, never fool with bees when you don't know whether you know any thing about them.

But when you know that you know, and you don't give a snap if everybody knows that you know you know, then—

Don't fool with bees, but keep bees.

[As an afterthought to the above rather melancholy experience, we may say that most beginners (perhaps by luck) succeed in getting honey the first year without having all the troubles known in beedom as our correspondent seems to have had. If this were not true, we are afraid there would be very few beekeepers. But there are cases, like the experience cited above, when the advice received only seems to lead to more trouble and when every move seems to be just the wrong one. Our correspondent is surely correct in his observation that it would have been better if he could have secured his information from reliable textbooks, of which there are now many, instead of trusting well-meaning, but poorly informed neighbors.

For the benefit of other beginners who may not be able to discover just what was wrong in the above management we will say that merely destroying queen-cells will not always prevent a swarm. And if a swarm does issue, it is accompanied by the old queen, the colony on the old stand being left with queen-cells, one of which contains the young queen destined to be the future mother of the colony. Destroying all queen-cells again rendered the colony hopelessly queenless, and in time laying workers developed. The plan for getting rid of them, while commonly practiced, is not very reliable.

The diseased combs need not have been buried. They could have been melted up, and most of the wax, at least, saved, so that a little more might be added to the profits, which, had it not been for the kindness of the one beekeeper, would have been nothing at all.—Ed.]

All bottom-boards have the Cary feeder. I very soon discarded the flat Excelsior covers, and replaced them with double pitched covers having an air-space, and covered with asphalt roofing felt (the same as that used to wrap the hive body); no painting; no leaking; no warping; and all made of cheap $\frac{3}{8}$ or $\frac{1}{2}$ -inch lumber.

I must admit that no small part of my enjoyment in beekeeping is derived from the mechanical features of it—the nailing and painting, fixing up supers, and all the little things in anticipation of the next season. Another most enjoyable incident has been the remodeling of an unused chicken-house, whereby I have a dry cozy little honey-house where surplus fixings are stored, and where the extracting was done this fall. There is a chimney with a fireplace or stove, and during warm weather there is running water from a pipe intended originally for hosing the garden. The shanty, as we call it, is 8 x 12, and has an asphalt felt roof and concrete floor. The tar paper from the old roof was laid down on an inch of sand, and the concrete on top of that, so the place is positively dry. There was no frost on the windows all last winter. This season I found one colony queenless in April. One colony swarmed late in August, and five days later an after-swarm was put back. The prime swarm was reunited before cold weather, so that my number remains at ten, which I consider all that the locality and my time will warrant. One colony was found by the inspector in May to have American foul brood. It was treated by the McEvoy plan, and at the close of the season I took about 30 lbs. of extracted, which was not so bad after all. One colony I used for experimenting, but it gave about 25 lbs.; so that, practically, only seven of the ten can be credited with the 450 lbs. extracted, and 65 salable sections which I harvested. Owing to bad weather when fall flowers were blooming all colonies were very light in winter stores. One or two had practically nothing, so 120 lbs. of granulated sugar have been fed, and I am waiting anxiously the coming of another season, when I may try my hand at queen-rearing in a small way.

Hoboken, N. J.

Heads of Grain from Different Fields

Bulk Comb Honey Brings 20 Cts. a Pound

I reported to you last April that I had saved all my bees but one colony, and that I had ten colonies in fair condition. I will tell you briefly my 1912 experience. I worked for both extracted and comb honey, or, in other words, I made all bulk comb honey out of my crop. I used the shallow frame for comb honey and the regulation size for extracted, and made a combination that seems to please my customers. I put it up in 2½, 3½, and 6 lb. buckets, and get 20 cts. per lb. for it. I closed the season Sept. 15, and I invoiced as follows: 1215 lbs. of honey, and my bees increased from ten colonies to 23, and all in fine condition for winter, either mild or severe.

TELESCOPE COVERS FOR WINTER PROTECTION.

I have adopted the telescope cover for winter protection that looks as if it would be a success. This telescope is 30 inches wide, long, and high, covered with rubberoid that slants to the rear with about 4 inches drop. This is stuffed, rammed, and crammed with forest leaves until it seems as if no cold air could get to the hive except at the front that faces east.

I am not prepared for cellar wintering, and do not believe I would swap my chances, as my bees are now fixed for a bee-cellar if I had one convenient. I feel reasonably sure that if I could save my bees from freezing such a winter as last, with only fair protection, that I shall have no trouble with them in any winter, as I now have them snug and warm. I put them away Oct. 2, and shall try to forget them until April 1, so far as care is concerned. These telescope covers cost me 68 cts. each; and as they will last as long as the hive I feel that they are not expensive.

GOOD OUTLOOK FOR ANOTHER SEASON.

I was surprised at some of the reports from Indiana regarding the small crop of honey. It seems to me, as an amateur, that 121 lbs. per colony, spring count, was not so bad; and had I expected such a flow from white clover I certainly would have been better prepared to receive it, and no doubt could have increased this amount considerably. From the white clover that we now see all over this part of Indiana, it looks as if next year would be a repeater.

Southport, Ind.

J. F. KIGHT.

A Missouri Beginner

One day in September, 1909, I returned from work earlier than usual—about 3 P. M. My back yard seemed full of bees. I proceeded at once to get out the garden hose and make rain for those bees. It settled them all right, but in a bad place, in the midst of an old grapevine that had not been pruned for years. I had an old copy of "Facts about Bees," so I hunted it up and hurriedly consulted its pages.

About the first thing I saw was in regard to using smoke to subdue cross bees. I knew those bees in my back yard were cross, by the way they flew round and round, and kept up such a loud hum. So I made a smoker by wrapping cotton rags around the end of a ten-foot piece of gas-pipe. The only thing I could find for a hive was an empty box about half as large as an eight-frame hive.

By pushing it with my smoker, I got it under the grapevine, and in position to receive the swarm; but how to get bees out of that mass of vines I did not know. I lighted my smoker, and by blowing through the gas-pipe I could make plenty of smoke. The smoke only scattered the bees among the vines. As a last resort I swung my smoker high in the air and aimed a smashing blow at one side of the cluster.

Every bee went to the ground with a thud, and soon ran into the box (I guess they were glad to go anywhere by that time).

I now read the booklet more carefully, and discovered that bees should be fed in the fall if short of stores, so I went to the corner grocery and bought a pound of honey. I put off giving it to them that evening.

The next day was Sunday. When I went out to look at the bees there were none in sight. I waited a few minutes; still nothing doing. I carefully turned up the box, finding one dead bee under it, nothing more. We had honey for Sunday dinner. My wife and neighbors had the laugh on me; but I had a well-developed case of bee fever.

The next spring I bought a two-frame nucleus in a Danzenbaker hive.

The years 1911 and 1912 have been poor ones in this vicinity; yet my two-frame nucleus has increased to two strong colonies that have given a fair amount of surplus each year.

Kansas City, Mo.

EDW. G. SMITH.

A Simple Plan for Frame Wiring; Efficiency without Expensive Equipment

I have often noticed in the bee journals mention of devices made especially for wiring frames—in fact, some of them rather elaborate. As the following plan is so very simple and yet extremely practicable it will perhaps be of assistance to some who are doing this very necessary work in a roundabout way.

It might be well to begin work with the frames out of six eight-frame supers, as a convenient number to handle at one time and to pile them on the table in front of you at either the right or the left. It is understood, of course, that they have been punched the requisite number of times in each end. For a seat, use a couple of empty bodies on top of one another. This will give you a rest for your feet, and will overcome the feeling of being perched on a fence, besides putting you on a proper level with the table. Your knees will be well up in front of you.

Take a frame; place it endwise with the bottom-bar up between your knees. The spool of wire should be slung around your waist with a short piece of the wire itself. This is the outstanding feature. The spool will lie in the hollow above the leg at the waist line, and the friction will keep it neatly coiled, and yet permit of free unwinding.

As yet your two hands are unoccupied, and can be used to the best advantage—i. e., in threading the wire back and forth through the perforated end-bars. Have a pair of pliers on the super between your knees for cutting the wire when enough has been pulled off. Go through the whole lot of frames with this operation, simply giving the wire a bend around each end-bar, and then come back again to make them taut, the latter operation permitting of a rest to the knees as you now hold the frame side-wise between them, with the end-bars alternately up; and the loose ends of wire are best fastened by shoving them through the hole a second time and turning it round and round the horizontal wire close to the end-bar. No hammer or nails have to be used, and considerable time is saved.

Working on a suggestion of Mr. Morley Pettit, we used a fourth wire in our frames, placed about three-eighths inch below the top-bar. This wire catches the upper extremity of the sheet of wax, holding it close to the top-bar; and in every case where the supers were placed on colonies in the evening, and the bees allowed to run up from below, they were fastened securely by the bees.

The time of day does not make much difference; but in hiving swarms it would be best to use sheets

with wedges, as the bees will be piled on the foundation in great numbers all at once, and the heat they create is likely to bend the wax away from the top-bar and make a mess of things. I have gone a step further this season in wiring, and used only three wires, the third one being next to the top-bar, and the other two dividing up the remaining space. I feel sure that if used in the right way, the bees will do the sticking without pulling the sheets out of true. I have seen them even cut small holes in the foundation further down to get wax without secreting it. Evidently their first thought when entering a newly added super over the brood-nest or extracting-body is whether the foundation is secure. The top-bars used should be plain $\frac{3}{8}$ or $\frac{1}{2}$ inch. Having on hand a large stock of the bars with grooves for wedges we made use of them, but did not insert the wedge—an operation which takes more or less time.

Kirk's Ferry, Ont.

H. HARLEY SELWYN.

One Month's Record of a Hive on Scales

The following is a record of two frames of bees shaken on May 3, 1912, with a golden Italian queen introduced the same day. No brood was given.

WEIGHT OF HIVE AND CONTENTS.				
	7 A. M.	12 M.	6 P. M.	INCREASE
Sept. 3		22 lbs.	27 lbs.	5 lbs.
Sept. 4	26 lbs.	26 "	31 "	5 "
Sept. 5	29 $\frac{1}{4}$ lbs.	30 "	33 "	3 $\frac{1}{4}$ lbs.
Sept. 6	32 "	31 "	31 "	1 lb. loss; cold rain
Sept. 7	31 "	31 "	38 $\frac{1}{2}$ lbs.	7 $\frac{1}{2}$ lbs.
Sept. 8	36 "	36 "	43 lbs.	7 lbs.
Sept. 9	40 $\frac{1}{2}$ lbs.	40 $\frac{1}{2}$ lbs.	46 $\frac{1}{2}$ lbs.	6 "
Sept. 10	44 lbs.	44 lbs.	51 lbs.	7 "
Sept. 11	48 $\frac{1}{2}$ lbs.	49 "	54 $\frac{1}{2}$ lbs.	6 "
Sept. 12	53 $\frac{1}{2}$ lbs.	53 "	54 $\frac{1}{2}$ lbs.	1 " rain; 3 P. M.
Sept. 13	54 lbs.	54 $\frac{1}{2}$ lbs.	60 lbs.	6 "

It is to be noticed from the above, that, with the exception of the 5th, 11th, and 13th, all of the daily increase in weight came in from noon to 6 P. M., and that which came before noon on the 5th, 11th, and 13th, was very small. Is this to be taken as showing the rule or not?

Then, again, the sum of the daily increase is 54 $\frac{1}{4}$ lbs., while the net is but 38 lbs., or showing a loss of 16 $\frac{1}{4}$ lbs., which I attribute to evaporation of the nectar and the slight difference in the weight of the bees at 7 A. M. and 6 P. M. The daily loss from 6 P. M. to 7 A. M. was from $\frac{1}{2}$ to 2 $\frac{1}{2}$ lbs. On the 6th, there was a net loss of 1 lb. from 7 A. M. to 6 P. M. There was a cold weststorm all day which kept all bees at home, and forced evaporation with nothing coming in.

Sandwich, Mass.

E. B. HOWLAND.

[It is possible that the bees were getting this nectar from some source that yielded mainly in the afternoon; but we think it is more likely that the great number of field bees absent from the hive at noon would counteract the increase in the weight of the honey.—ED.]

Proper Size of Entrances; Mice in Hives

This season my bees made a net surplus of more than \$8.00 per colony, average, spring count, and increased 50 per cent. They are now packed for winter. Most of my hives are home-made, some single-walled, some two-story, and some one-and-a-half story. The top stories telescope one inch down over the brood-chamber, and rest on a $\frac{3}{4}$ strip.

I laid two rows of corn-cobs across the frames to give a passage from one side to the other, then put on trays of planer shavings that rest on the top of the brood-chamber.

Last winter the mice got into several hives at

the entrance, and nearly ruined the colonies. The hives being home-made, the entrances were from $\frac{3}{8}$ to about $\frac{1}{2}$ inch. So this time I fitted in pieces that closed the entrances to $\frac{1}{4}$ by about 12 inches. Do you think that will give them enough ventilation? Our weather prophets predict a cold winter because the corn shucks are thick, etc.; but I do not take much stock in it, and hope they are wrong. We have a fine prospect for white clover at present. My honey is about all sold locally, at 15 cts. for comb and 10 for extracted, net.

Walton, Ky., Dec. 5.

J. G. CRISLER.

[While it is difficult to give a definite answer to the above that will fit all cases, we should say that an entrance $\frac{1}{4}$ x 12 inches should give more than enough ventilation for the average colony.—ED.]

How Bees Eat Dry Cube Sugar in Winter

Since my letter in regard to wintering bees on dry cube sugar appeared in GLEANINGS, Oct. 15, p. 663, I have received several rather sharp calls along one line—*viz.*, that sugar, before it can be used for wintering bees must be made into a candy or syrup—that it is impossible for bees to live on dry sugar.

Cube sugar will absorb a large amount of moisture from the air in a hive during frosty weather, and at the same time will retain its shape and will not become sticky or runny. After it has absorbed a certain amount it refuses to absorb any more. When in this condition the bees readily work on it.

There is a slight loss in this way of feeding, due to the fact that the bees eat the cubes down to a size where they will fall through between the frames. During the spring housecleaning fewer some colonies will carry these small pieces of sugar out of the hive, while others will work it over till there isn't a crumb to be found.

It is possible for bees to winter on dry cube sugar placed above the brood-nest.

Newark, N. J.

CHARLES S. SHARP.

An Explanation

It seems, p. 755, Dec. 1, that Dr. C. C. Miller doesn't understand me. I do not intend to convey to the minds of the readers of GLEANINGS the idea that they should develop a taste for honey they do not like. What I meant is, that honey should be called by the name of the blossoms from which it is gathered, leaving to the judgment of the consumer which honey he prefers, hereby giving all honey, regardless of color, an equal selling chance. We do not buy potatoes as blue, red, or white, neither sugar nor any other staple, except tea. We name them by their kind. We all have our preferences, regardless of differences in opinion. I hope this will set me right.

Cincinnati, O.

HENRY REDDERT.

Dandelions and Buttercups in December

I have 35 colonies of bees, and at 9 o'clock in the forenoon of Dec. 6, this year, I was in my yard, and the bees were flying all about me, like summer—something quite unusual for December in this latitude. On our hillside we can now find dandelion and buttercups in blossom. Clover is looking fine, and we hope to be numbered next year among the first in the way of white clover in the comb.

Cherry Valley, N. Y., Dec. 9. WAYNE SNYDER.

28 Colonies Increased to 76

I successfully wintered 28 colonies, and have increased them to 76 good colonies, and harvested 3300 lbs. of honey, which is not so bad for a beginner.

Lowville, Ont.

GEORGE BRADT.

Our Homes

A. I. ROOT

The sabbath was made for man, and not man for the sabbath. Therefore the Son of man is Lord also of the sabbath.—MARK 2:27, 28.

WHAT SHALL WE DO ON SUNDAY?

The first thing I read in your journal is *Our Homes*, therefore I value it most. I wish Mr. A. I. Root would some time give us a talk on what we *should* do on the sabbath, as he often tells of what we *should not* do. As I am a beginner in Christian Endeavor work I am looking for information to help the society here.

Lakeside, Cal.

G. E. PHILBROOK.

My good friend, the Bible enjoins us to remember the sabbath day to keep it holy, and therefore the first thing to consider is the word holy—what does it mean? How did the Savior spend his sabbaths? For one thing, he went to church. We read in the fourth chapter of Luke, sixth verse, "And as *his custom was*, he went into the synagogue on the sabbath." Again, we are told, I think repeatedly, that he healed the sick on the sabbath, and so we are told two things—he attended church without fail, and he also ministered to those who were sick and suffering on the sabbath as well as on week days. When the Pharisees complained about his manner of keeping the sabbath, he asked who it was who would not go to the rescue of a sheep or an ox that had fallen into a pit on the sabbath. If I did not attend regularly the preaching on the sabbath, and also Sunday-school, I should feel guilty; and I do not see how any follower of the Lord Jesus Christ can be excused for absenting himself from some place of worship on Sunday unless it is next to impossible to get there; and I should not be particular what church it was. You are pretty sure to hear a good sermon in any of the evangelical churches, and you are pretty sure to be among a lot of good people who love the Lord whenever you go into any Sunday-school.

While I do not believe in promiscuous visits on Sunday, I think it is right and proper that you should do what you can to help or relieve sickness among the relatives or immediate neighbors. If you know of any thing you can take them that will cheer them up, say fruit or flowers, by all means do it, even though it is Sunday. If you have reason to think that the sunshine of your presence will do them good, do that. Carry something to read to those who are unable to read; and if opportunity offers, read the Bible; and it is a nice thing also to sing a hymn to those who are lonely and are glad to see you. If you can not sing a hymn, get right at it and learn some simple hymn. The Sunday-school is a

splendid place to learn such hymns. Our recent hymn-books contain gems of thought as well as music, and are wonderfully cheering to one who is sick and discouraged.

Now, there are some people I know who think they must sit at home and read when not at church. I do not agree with this. One of the most important things in order to feel well, and especially if I want to keep well, is to have exercise in the open air, even if it is Sunday. If I were a farmer, and had live stock and crops, I would go out over the farm and "count my blessings," see how much I have to thank God for, which I did not think of during the week. Give the domestic animals something they are fond of—a lump of sugar or an apple to the horses and colts. Make them feel, as well as everybody else, that Sunday is the day to have a good time. Get acquainted with your domestic animals. I need not tell you, for I have said it so many times, that a hen lays more eggs when she gets well acquainted with you, and feels happy every time you come around. Sunday is a good day, too, to encourage a *closer* acquaintance. Above all things, look at the flowers; and do not forget to raise your thoughts to the great Giver of all things in thanksgiving and praise. Like the animal that has fallen into a pit, as mentioned by our Savior, there is almost always something to be done for the relief of suffering in your community or neighborhood among the people or among the domestic animals.

Of course, Sunday is a time when you have more leisure to read. On Saturday I usually have a great mass of periodicals—journals given to farming, gardening, poultry, and many other things; but these are all put away just before I go to bed Saturday night; and Sunday morning, when I first get up, I go for the *Sunday School Times*. Several years ago I said if you can afford only one periodical besides your town paper, let it be the *Sunday School Times*; and I have no reason to change my mind in regard to it. It is the best religious periodical I know of—at least of its kind. After the *Sunday School Times* I would suggest periodicals published by your own denomination. We take the *Chicago Advance*, which is a Congregational organ; but I do not feel as free to read it on Sunday, *every bit of it*, stories and all, as I do the *Sunday School Times*.

I want to speak once more about our domestic animals. I have heard of farmers who put off salting their farm stock till Sunday because they would have *more time* on that day. I do not believe that that is exactly the thing to do; but at the same time we should bear in mind that a merciful man is merciful to his beast. I do not know but it would be right and proper for a Christian man to look all of his domestic animals over with a little more thoroughness on Sunday than on any other day—look after their happiness, and see that their water and feed are just what they ought to be; and, if it is a possible thing, teach them so that they will look forward to it and expect it, and to expect, too, that Sunday is a day of rest.

There is one thing I like about automobiles. They permit the whole family to get to church without depriving the tired horses of their rest. But when I say this I recognize, sometimes with sadness, that automobiles too often go in some other direction than toward the church on God's holy day. Sometimes after having been to church they take long spins somewhere else. The different automobiles that Mrs. Root and I have owned have never been used except to go to places of worship or perhaps to call on near relatives. Until my mother died it was my practice all my life to make her a little call every Sunday afternoon, and I did this before I was a professing Christian. Very likely these Sunday-afternoon calls had much to do with the fact that I finally accepted my mother's religion and her Savior. Since her death I have been in the habit of calling on my sister, for only one is left now out of four.

And now, my dear brother, I have given you a pretty good account of the way in which I spend my Sundays. Perhaps I should add, however, that whenever I am induced, during these calls I have mentioned, to talk about business or week-day duties, my conscience is not as clear and as devoid of offense toward God and the Master as when I have tried to keep in mind the command to keep the day holy. Perhaps we can not do better in closing than to quote the 13th and 14th verses of the 58th chapter of Isaiah:

If thou turn away thy foot from the sabbath, from doing thy pleasure on my holy day, and call the sabbath a delight, the holy of the Lord, honorable; and shalt honor him, not doing thine own ways, nor finding thine own pleasure, nor speaking thine own words, then shalt thou delight thyself in the Lord; and I will cause thee to ride upon the high places of the earth, and feed thee with the heritage of Jacob thy father; for the mouth of the Lord hath spoken it.

SHOULD MURDERERS HANG!

I have just read Mr. Thomas Dewees' letter on page 459, July 15. It is a good letter, and breathes a Christian spirit right through. All the same, I am firmly of the opinion that it is necessary to hang the murderer as a deterrent to other evil-disposed persons.

I have read a lot about the statistics of the United States, and there is no doubt that the crime of murder is increasing there to an appalling extent. Butler, the man who murdered and buried his victim, Le Weller, within a quarter of a mile of one of my bee-farms on the Blue Mountains, was brought back from San Francisco, and hanged; and there is no doubt in my mind that it had a salutary effect on others of a like stamp. There are some men who are simply human tigers; and to imprison these brutes for life, which means here really fifteen years, and then let them loose among the people again, is, I think, criminal.

A little time ago a man in Sydney, named Phillips, ravished and murdered his nine-year-old daughter while he was under the influence of drink. He was condemned to death; but the ministry in power here at present will not hang, and they commuted the sentence to imprisonment for life—that is, fifteen years.

A little while ago a young man only twenty years of age, a fine-looking fellow, only just married, murdered a man named Travassius. He traveled thirty miles to commit this murder. He made arrangement with his victim to meet him in his own home at 8 o'clock in the evening, brought a plow-coulter with him, and a razor; and while they were talking together he suddenly struck his victim over the head with the coulter and then cut his throat. He was sentenced to death, but the ministry commuted the sentence to life imprisonment—fifteen years. Now, this young fellow is a type of the human tiger. He was not drunk. He simply wanted money, and he murdered a man for \$250, and then cleared off for Melbourne and enjoyed himself with his wife.

Just a little time after this, a half-caste committed an assault on an elderly woman in Sydney; and the very first thing he said when the police caught him was this: "They can't hang me; they did not hang Phillips." You can see how he reasoned. At one time they used to flog people here for certain crimes. Then the public cried out at the futility of the practice, and flogging was abolished. Some time afterward an epidemic of garroting broke out; and the ordinary punishment of imprisonment proving no deterrent, the flogging law was brought into use again. The magistrates sentenced the culprits to six months in jail and two floggings of fifteen lashes each. Still the garroting continued. So the magistrate sentenced the man to one flogging and then to be turned adrift among his friends. The lockup where the flogging was to take place was surrounded by a crowd of his friends and sympathizers, and they could hear him howl as he got his punishment. Then he was pushed out among the crowd, and his friends had a chance of examining his back, and could get a fair idea of what flogging meant. Brutal? Yes; but it stopped the garroting. Is not garroting brutal? Is not murder brutal? and is it not necessary to deal with these brutes as brutes? Murder is on the increase in New South Wales on account of not hanging, and I believe it is so in the United States also, for the same reason. MAJOR SHALLARD.

South Woodburn, Australia, Sept. 1.

While we are giving place to the above we also submit the following, which was furnished by our stenographer, W. P. Root, for our *Medina Gazette*:

THE RIGHTFULNESS OF CAPITAL PUNISHMENT.

As I write these words, Sept. 23, preparations are being made in Charlestown, Mass., for the execution, by electricity, of the third man, in the same chair, in the space of just four months. The first was Rev. Mr. Richeson, who ruined a girl in his flock and then induced her to swallow a capsule filled with cyanide of potassium. He was executed May 22, after a full confession, "for Jesus' sake," as he put it.

A week ago a Mr. Spencer was executed in the same chair for playfully shooting a lady schoolteacher when trying to rob her of her money.

The case under way is that of Mr. Chester Jordan, of Springfield, Mass., who murdered his wife and cut her body to pieces as did Mr. Crippen, the Detroit dentist, in London.

The case of Mr. Beatty, of Richmond, Va., who shot his wife while she was in his automobile, a year ago, and for which he was executed on the 24th of last November, is still fresh in our minds.

This whole business is sad indeed; but some seem to see no sadness in it except the ending. The sadness is in the thought that the three men first mentioned, and probably all five, singularly gifted, mentally and physically, should have been so destitute of all moral perception as to choose deliberately a course of action which they knew would haunt them to the grave, even without detection, but which, after all, they knew they could not escape. These men had it in their power to make their names honored for all time as did the late Wm. Booth, of the Salvation Army; but instead they shook a dead tree to get the apples of pleasure, and pulled down on their own heads the fire of Sodom. In each of the five cases the matter was rendered many times worse by the fact that the victim was a helpless woman; for, bad as is the murder of a man by anybody, the sand-bagging and shooting of a woman is the limit so far as depravity is concerned.

During the late campaign some literature was sent out here, arguing against the execution of such artists in human slaughter as I have mentioned. I am glad the law will stay as it is. Statistics in such cases prove nothing by saying that Michigan has no executions and only a few murders, while Ohio has more. A difference in nationality would account for all that. Cleveland has a foreign population of fully 400,000 and Cincinnati about 250,000, while Toledo, Columbus, Dayton, Youngstown, and Akron would run the number up to all of Michigan's population, the latter being composed largely of the most progressive people from the eastern part of the country. But even the Michigan law does not prevent murder there.

Unless we know how many men have checked a murderous thought when a possible rope has dangled before their eyes we can not decide those questions by statistics; but it is easier to believe that a man will refrain from murder if he knows he will probably be hanged for it, than to suppose he will abstain from it with only a penitentiary sentence back of him and a probable early pardon.

The rightfulness of inflicting death by law is questioned. That depends on our standard of right. I assume it to be the Mosaic code. Alfred the Great, a thousand years ago, made the 20th, 21st, and 22d chapters of the book of Exodus the basis of common law in England, and it has been so regarded since that time; and that basis is also the standard of law in the United States. As a clear conclusion from that law, or a comment on it, we read in Numbers, "If he smite him with an instrument of iron, that he die, he is a murderer; the murderer shall surely be put to death." That law was nowhere deprecated by Jesus Christ, nor does it antagonize his doctrine. He came to

preach to men as individuals; but he left society, organized under law, to bring down its own tremendous malediction on those who take human life when in the commission of crime.

Of course, some murderers should not be executed. If it could be proved positively that the present incumbent of our jail slew his wife, his apparent mental condition would seem to call more for confinement than rope; or when men get into a row over a line fence, or several engage in a wholesale carving rumpus, and one gets laid out, it is impossible to say who is wholly to blame. But when we consider such midnight assassinations as that of the Coy family here, and the devilish cruelty of Blinky Morgan and his gang as he held Marshal Frazier up here, in December, 1886, while the villains blew up our county treasury, and afterward shot the policeman dead, near Ravenna (for which he was hanged), the subject of mercy ceases to be mercy when dealt out to those who never showed any, and despised it when they saw it. As it is, only about one murderer in eighty is put to death in this country, as our criminal courts are so defective in their operation—vastly inferior to those in England.

Still, I am greatly opposed to capital punishment; but I am not so much opposed to it as I am to the cause and necessity of it; and it can be done away with, with neatness and despatch, as soon as we get the consent of the gentlemen sirs the murderers themselves.

W. P. Root.

As if to add emphasis to the communications above, the papers tell us that Shrank, the would-be assassin of Mr. Roosevelt, followed him from New York to Milwaukee, through about ten States, in order to do the deed in a State where capital punishment is not inflicted. This shows conclusively how such men reason.

"PROFITS" AND "DOLLARS."

Dear Friend:—To me GLEANINGS is one of the best journals I ever read, taking it from cover to cover. To my mind I never read its equal. I am 68 years of age; 52 years of that time I may say I have been a member of the Methodist Church, in good standing, so you see I can take great pleasure in your Home talks.

In the issue for Oct. 15 there is considerable attention given to temperance. In it and other issues you combat earnestly the evils of intemperance, but you seem to me to wrestle with the effect, instead of the cause, of that unnamable evil.

I am not going to lecture you, for I am not able, because I believe you are doing your part to keep the light of truth and humanity burning on the altar.

1. What would happen if congress and the legislatures would pass laws to prevent any profit being made out of the liquor business, tobacco business, or any other evil business?

2. How many people would engage in those vile businesses, if there were no dollars to be made out of them?

Nelson, B. C., Oct. 27. GEORGE FLEMING.

My good friend, I thank you for your kind words; and my opinion of the points you make, 1 and 2, is that you are exactly right. But what are we going to do? How can one consistently vote for Chafin after his unkind and unchristianlike fling at the Anti-saloon League because they have happened to differ with him in regard to meth-

ods? See Special Notices for Nov. 1. I am certainly heart and soul in favor of removing the temptation by cutting off this profit from the business. I have already mentioned that in Cuba, where I spent one winter, intoxicating liquors were sold at almost every country grocery. A man could get enough whisky for a penny to

make him drunk, and a child could get a cent's worth of whisky in a tin cup; but intemperance there in Cuba was nothing to be compared with what it is here in the United States; and especially was that the case before "we, the people of the United States," carried over to the Cubans our American beer and other liquors.

Poultry Department

FLORIDA FOR POULTRY.

Dear Mr. Root:—Many letters have been received, asking if Florida was good for poultry. These and other inquiries about the country have gone unanswered because the writer was too busy to reply to so many. Perhaps GLEANINGS will be kind enough to carry an answer that will reach and relieve all these anxious ones. After three years of careful investigation I can say, without reservation, yes. Below are some of the advantages. Land is cheap; housing costs almost nothing; no long hard winters call for expensive houses and intensive care. Prices are good. If one will use open roofless pens or houses in which to keep his birds they will be healthy and free from vermin. They can be hatched at all seasons of the year; but I suggest that one cut out the rainy season. Now is a good time to start the hatching. Yesterday morning as I passed a neighbor's I caught sight of a bunch of turkeys, and remarked that I would be around Thanksgiving day. He said they were all gobblers, and would need to be eaten that day or Christmas. But he added that he had hopes of perpetuating the flock, as the old hen was faithfully incubating a batch of eggs. Think of it, you frost-bound people—young pullets in November! The weather is favorable. They should do well.

A surveyor is away from home so much that he can't raise poultry, no matter how fond he may be of that work. I can get more pleasure watching a brood of chicks ("biddies" the Floridian calls them) than I can by watching a championship game of ball, and I have been a fan over 40 years. I must follow my profession, and that cuts me out of a lot of fun with the biddies. A man must live with his flock every day of the 365 if he would make it pay, and a surveyor can't do that. My work called me to Lee County three weeks of September, and fifteen days of October were spent on another job besides many single days away from Parish. So I cut out the practical side of chicken culture and confine myself to observation. Eyes and ears are open all the time for all facts that bear on this interesting subject, but I claim to be only a "looker on."

The chief drawback down here is the cost of feed. Long hauls from the North make heavy freight bills. The middleman comes in for a big profit. Of course, feed is high; yet all the poultrymen of whom I have knowledge buy it rather than raise it. Mr. Stevens, at Alva, keeps 600 that roost in his orange-trees and feed on dry mash from old boxes. He spends not one per cent on equipment, but buys all his feed. Mr. Throop, at Enterprise, is in the business big. He has 2000 hens the year round, that clear him at least \$2.45 each per annum. He says it is better than a grove. He raises no feed, preferring to give the time to personal care for his flocks. The houses are cheap low sheds with old fertilizer-sacks for sides. They cost scarcely a hundred dollars for the whole outfit. A writer who makes his living at Clearwater out of his White Leghorns, said in a recent number of the *Florida Grower*, that he bought all his feed last year and cleared \$1.40 per hen.

This man goes in for more expensive housing than the others. He writes that he "would as soon think of sleeping with a leaky roof over his head as over that of his chickens." Fine sentiment, that, but only sentiment. Down here the roofless house is the kindest place in which to keep your pets. There they are healthier, and freer from insect pests than when under roof. There are no kinder people than Mr. and Mrs. W. A. Halsey, of Terra Ceia Island. They shut their chickens up in roofless coops or houses the year round because they are healthier and more comfortable there, and lay well. Last summer, when everybody else's hens were on a strike, and no eggs could be bought in the country stores, theirs were shelling out the hen-fruit, keeping them supplied with all they could use, and they never stint themselves.

The Halseys were formerly in the poultry business, but now have only enough for their own table. They live off of the returns from 700 grapefruit trees on their ten acres, which nets them \$5000 or better per annum. Mr. H. came to Florida 25 years ago from Chicago. His experience was that of a city man. He knew nothing about farming. Having no capital, he worked at day labor as he could find something to do. When he got a chance he started to raise poultry. He saw that those who let their hens roost in the trees with a piece of old stovepipe about the trunk to keep the varmints away had no trouble with vermin and disease, and those who built houses for them had no end of trouble. Therefore he adopted the roofless house. Later he took up with the bottomless coop resting on the ground, which the poultry papers of those days were suggesting. It was the Philo system long before Philo hit upon it as the way to make money. In this case it was adapted to the conditions where it was to be used, which is the secret of success in every business, in every clime. Adapt yourself to your condition, and stay with it, spells success everywhere.

The Halsey plan is a light-weight bottomless coop set on Bermuda-grass sod, and moved every two or three days. There is an orange-box for a double nest in one end of the coop, which last is 8 feet by 8 feet on the ground. Its two ends are shaped like a capital A. It has two cross-pieces that strengthen it and serve as roost. It is enclosed with wire netting. Twelve hens spend their whole laying experience in it and enjoy it. As I told above, they lay well, much better than those that run out on the neighbors' land, and they are never in the way in the truck-patch. Fresh water is supplied, and they get a quart of mash in the morning, and a pint and a half of wheat in the afternoon, to each coop. During the trucking season they get plenty of lettuce. The rest of the time, grass furnishes their green food. It is not unusual to see the Philo system in use here, just as its author directs for city backyards and house-tops in the North. There seems to be no effort to adapt the method to conditions. Proper adaptation to location and surroundings is needed in all things. When the farmer comes down from the North he must forget what he knows, and

learn over again if he would get the best results in the quickest time. Then he needs to bring either enough money or enough time and ability to work so as to carry him through several failures. As a rule the road to success begins on the failure route, and in many cases it is a long way to the proper turn.

As many are thinking of Florida I may do them a service by telling two stories—one of them of the friends whose method with poultry has just been set forth, the other of their neighbor and uncle, Mr. Chas. Blood. It cost Mr. H. about twelve years of his early manhood to get a start here. He worked and struggled hard, but made little progress apparently. He was finding himself, and learning the growing of groves. Offered a job of caring for a grove, he went to Terra Ceia, a fertile island just north of the mouth of the Manatee in Tampa Bay. Having endured hardness, he was ready for his opportunity, and grasped it when it came. He found a good woman, one of the salt of the earth, and married. Then he made the first payment on ten acres. They built a shanty, and began the struggle for a home. He grubbed palmettos and stumps, grew truck, and cared for the grove of the non-resident. She raised chickens with his help; but all the time they were working for a grove as the goal of their ambition. They planted the seeds, grew young trees and budded them, and after a while they began to yield. Then they got on to Easy Street, and are now enjoying the fruit of their struggle. They bought the ten acres in 1899, 13 years ago. For about half of that time they have been getting a revenue from their grove, and for about five of them the revenue has been large enough to mean comfort. A quarter of a century, divided into twenty years of hardship and five of prosperity, is not bad, is it?

The most remarkable grove that I have seen in my rather extended travels over central Florida and the west side of south Florida belongs to the Mr. Blood mentioned above. There are thirteen or fourteen acres in his tract, with about 2000 grapefruit-trees on ten of them. House, barn, lawn, packing-house, and a pond occupy about four acres.

Mr. Blood is the apostle of intensive grapefruit culture. His trees are set 14½ feet apart, 200 to the acre. The old-time grove-grower sets them thirty feet apart, less than fifty to the acre, and for many years cultivates land that his trees do not fill, waiting for the time when, tall and stately, they will take all the space.

Mr. Blood believes in the present rather than the future, and wants the largest returns this year rather than a decade hence. As many trees to the acre as will take up the entire space in a few years, then all the water and fertilizer those trees will stand is his practice. The results are good. He began on Terra Ceia about seventeen years ago with nothing. His revenue by the time he had been there ten years was at least fifteen thousand dollars per annum. Since then his yearly average, clear of all expenses, has been fully that amount. Who can tell the value of an acre of ground that nets \$1500 annually?

He and his wife spent the summer visiting northern friends and relatives. For several weeks they were with a brother-in-law who owns a big wheat-ranch (two whole sections) in the valley of the Red River of the North. A large force of hands, with traction engines, gang-plows, and other up-to-date machinery make this 1300-acre farm very profitable. It is the ideal of modern farming; but our Florida friends prefer their thirteen-acre grove. They live easy, in the best climate in the United States, with no rush, and get more comfort and as much money as the big farmer. One acre of their farm is worth a hundred of the bigger one. Comment is unnecessary. The story speaks for itself. If one wants to know Florida's possibilities, there they are.

Please notice that these successful people learned the business through struggle and failure, and that their success came after years of waiting. Gold grows on trees here, but one must first learn how to grow the tree. Time, patience, hard work, grit, and many a disappointment are elements of life here as elsewhere; but the opportunity is great, and conditions favorable. Come and see for yourself.

Parish, Fla., Nov. 21.

F. M. BALDWIN.

SITTING HENS VS. INCUBATORS.

Our readers will remember that I have several times brought this matter up. Let me go over it briefly. Last winter I filled our incubator with eggs by standing them on the small end, and thus got in quite a few more than the incubator was made for, proposing to take out the unfertile eggs after three days. But that night I found a sitting hen, so I took fifteen eggs out of the crowded incubator and gave them to the hen. She managed in some way to have almost every egg fertile; but the incubator made only about two-thirds fertile. The experiment was repeated with like results. Finally our good friend Keyser, well known in poultry circles, announced that he took some eggs from the incubator at testing time, which showed no sign of fertility. He gave these to a sitting hen to "keep her going," but forgot about it, and in three weeks' time she hatched quite a few chicks. In other words, the eggs that would not show any sign of fertility in one of the best up-to-date incubators were, the greater part of them, afterward made fertile by the sitting hen. I found the same true with duck eggs. Sitting hens produce ducks from almost every egg; the incubator does it with only a little more than half as many. I submitted this question to incubator men and others; and I think the general verdict, although sometimes reluctantly given, was that a sitting hen is possessed of some "trick of the trade," or whatever you may call it, that beats, if not all incubators, the greater part of them, in getting the germs in the egg to start. In my investigations I notice that the eggs under a sitting hen have a greasy or oily appearance not found on eggs in the incubator; and a writer in the *American Poultry Advocate* for June, last year, has quite an article on the matter, from which I clip the two following extracts:

He believes that the oil on the eggs which are set under hens plays an important part, and goes on to say that some experiments have been conducted with a combination of the use of moisture, hen oil, and carbonic-acid gas; and that the difficulty was the absolute control of the factors. The few hatches have given great hopes of being able to accomplish something worth while when the control of these factors was learned.

The presence of more oil on eggs under hens than in incubators was brought out at the Oregon station. The amount of oil was also found to be

greater by seven or eight times when eggs had been incubated under her two weeks than at the beginning. By removal of eggs from the hens to incubators it has been found that the oil on the shell disappears in large part. In regard to the oil, Prof. Brown believes that it checks evaporation, since it has been shown that there is a greater circulation of air under the hen than in the incubator, while at the same time evaporation is less; but the oil may have other important functions that we as yet know nothing of. (Personally, I believe that the hen feeds the chicks in the eggs by the absorption of this same oil through the shell. An experiment proved to me that the hen does secrete something, whether oil or what not, which goes through the shell into the chick or egg during incubation. I took an egg from under a hen, which had been in process of incubation for nearly three weeks, and another from an incubator that had been in incubation for the same length of time. Both eggs were infertile and intact, and I broke them and fried them. I endeavored to eat the egg from under the hen; but the rank, strong garlic taste compelled me to forego the pleasure. The incubator egg had no disagreeable taste whatsoever. This is conclusive proof that the hen does do something for the chicks in the egg which the incubator does not; hence the reason why a hen generally hatches better than the incubator.)

This oil mentioned above is, no doubt, the oil secreted by the hen to smear on her feathers to shed water during a rainy time, and it is, no doubt, the same oil that we get out of a fat hen. Now, suppose we have a bottle of "chicken oil," and oil the eggs once or more when put into the incubator. It would stop evaporation, and prevent the egg from drying out, particularly when the incubator is not located in a damp cellar. You know how dampness has been highly recommended for the incubator room, even to keeping water on the floor. Who can tell us more about this matter? Has anybody tried oiling the eggs with chicken oil? I do not think we need to worry about its doing harm. The nicest lot of chickens, or about the nicest lot I ever grew, were from a lot of the muddiest eggs I ever saw. In fact, they were so plastered with mud I thought they would not amount to any thing, as I was too busy to wash them off. The hen hatched every egg with about the strongest chickens I ever saw. Now, if covering them with mud, or a sticky or clayey mud, such as we have here, did no harm, but, rather, good, then we have reason to believe that a little chicken oil applied every little while would not be a bad thing. Just one more suggestion:

A sitting hen sometimes if not usually pulls off all of her feathers where she touches the egg with her body. This naked body looks greasy and feels greasy. In fact, she squeezes the eggs up against this greasy body of hers with her wing. Have you not seen a sitting hen, when chased off the nest, carry an egg or two under a wing?

TURKEYS, CHICKENS, AND BEES.

See these two clippings from the *Ohio Farmer*:

I notice in your issue of Nov. 2 an article concerning a "prolific turkey hen." Mr. Harris states that his turkey hen laid 115 eggs without stopping. I think I can go him one better. My mother had a turkey hen that began laying April 17, 1907, and laid her last egg Nov. 27, same year, making a total of 166 eggs, without attempting to sit, not even after through laying. She was of the Bronze variety. This is no fake, and if necessary I could furnish affidavit to that effect.

M. E. ROBINSON.

Wm. R. Lewis, custodian of the grounds and buildings of the Kansas Agricultural College, has ten hives of bees. The past summer Mr. L. took from one hive 180 pounds of honey. The average product of the ten hives was \$15 worth of honey, or \$150 for the ten hives. He figures the cost of looking after the bees to have been \$10, leaving \$140 clear profit. He devotes a few minutes to the apiary daily. He says the secret of beekeeping, if there is any secret, is to do the few things necessary at the proper time. Put on a super just when it is needed. Know when a swarm is to come out, and be ready with a hive for it. Know how to detect bee diseases and how to combat them. Work carefully and steadily, and don't get excited.

First about the turkeys. Even if the above is very unusual, it reminds us that a strain of egg-producing turkeys (like Leghorns and Indian Runner ducks) is possible, yet, so far as I can learn, there isn't a "turkey ranch" in the whole State of Florida, and at the same time wild turkeys are in the woods, more or less, all over Florida. All the turkeys in the markets for Thanksgiving and Christmas are shipped in from Georgia and further north.

In regard to bees somebody has said that, while the feed bill for all kinds of fowls (especially here in Florida) is a big expense, *bees* "work for nothing and board themselves." This is, to a certain extent, true; but *once in a while* the beekeeper is not only without honey, but may be compelled to buy barrels of sugar to keep his hundreds of colonies from "going dead." The statement from the Kansas Agricultural College is interesting because it is not only authentic, but because it indicates what educated care accomplishes. And, by the way, is it not true that some of our experts *always* get a crop of honey, more or less?

Since writing the above I note the following, which I clip from the *Cleveland Plain Dealer* of Nov. 26:

20,000 TURKEYS TO TROT; LED BY TEXAS GOVERNOR, THANKSGIVING BIRDS WILL PARADE.

CUREO, Tex., Nov. 25.—Twenty thousand Thanksgiving turkeys will "parade" here to-morrow at Cureo's famous turkey-trot celebration which will last three days.

Gov. O. B. Colquitt and staff will lead the procession. Thousands of the turkeys were driven over land many miles, and this afternoon the incessant "gobble" was heard all over the city.

The turkeys will be shipped following the parade. They will go through the streets afoot.

Cleanings in Bee Culture

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Editorial

EXTRA-YELLOW VS. LEATHERED-COLORED ITALIANS.

ELSEWHERE in this issue, Mr. Penn G. Snyder alludes to the fact that the editor, through these columns, has spoken of Golden bees as being very often cross and short-lived. We do not mean to claim that *all* extra-yellow bees are bad stingers; but we have obtained stock from all over the United States, and the most of it is either cross or dies off before spring. Many of these so-called five-banders have been bred so much for color that they are about like some of the high-class poultry that has been bred so much for feather that they are practically good for nothing. On the other hand there has been a great demand for the extra-yellow bees. They are beautiful to look at, and are sometimes the equal of any other stock of darker color. If Mr. Snyder has that kind of stock he is to be congratulated. Only recently one of the largest honey-producers in the United States, and a queen-breeder as well, told us he had eliminated all the yellow bees from his yard, adding that he was much disgusted with them on account of their being so cross, and he was going back to the old leather-colored Italians. He and his customers have had some disagreeable experience with his yellow bees, as we happen to know. Notwithstanding he says he bought stock all over the United States, they seem to be very much the same as regards bad temper and impaired vitality.

SHIPPING BEES WITHOUT COMBS, AGAIN; THE GREAT AMOUNT OF INTEREST IN THE PROPOSITION.

LITTLE did we anticipate, when we first advocated shipping bees without combs to save the cost of express charges, and to eliminate bee disease, that so much interest would be manifest on the part of our subscribers. Correspondence is coming in thick and fast from all directions, asking for more particulars—"What kind of cage would you recommend?" "How do you supply the bees with water?" "What is the best food while in transit?" "Could comb-

less bees be shipped by parcels post?" "What effect will parcels post have on express rates on bees?"

Some of these questions we have answered in part. Other questions will be answered more fully as soon as we can secure engravings to illustrate the form of cage.

In the matter of food we use for the present at least the ordinary candy, such as is used in regular queen-cages. But we are coming to the opinion that a thick syrup may be even better. The problem is, however, to provide a receptacle that will feed the syrup to the bees as fast as they require it, *without daubing*. We have tried out the atmospheric feeder using one hole. So far the experiments with the use of syrup have been on so limited a scale that they have hardly warranted us in giving a definite opinion. Water is given to the bees in the same kind of a feeder. Through the top or bottom, rather, is punched a hole about the size of a coarse pin.

Both the cans for holding the syrup or the water, or both, should be secured to the top of the cage. In order to prevent the package from being laid on its side, or being turned upside down (thus causing the feeders to leak) the top is provided with a convenient handle; and, of course, there should be displayed a label, reading "*This side up*."

Through the body of the cage there is secured a series of thin slats arranged horizontally about $\frac{3}{4}$ inch apart and the same distance vertically. These slats taking the place of combs serve the purpose of a support for the bees during transit. Dearly bought experience years ago showed that the mere wire-cloth cage without any clustering supports to hold the bees while in transit would deliver only a small portion of them to their destination in good order. While many of them went through, the use of the slats in lieu of combs has eliminated two-thirds of the former losses while the use of the water-bottle during hot weather has served to eliminate the remaining loss not taken care of by the slats.

It is important that these cages be made light and stout—capable of standing rough usage, and to that end they should be well braced, and only a strong light *galvanized* wire cloth should be used. The latter should be further protected by a wooden grating to prevent making holes through it.

We do not know whether these cages can be sent by parcels post. We advise against it for the present, or until this method of sending bees by express has been developed a little further. The express companies will doubtless reduce their rates on bees so that they will be level with those for parcels post. As the express companies have always met postal rates before, we assume they will do it again. Furthermore, we do not know whether Uncle Sam will accept pound packages of bees in the mails. We believe, however, that the time will come when bees can be sent by parcel post. The only fear we have at present is that some beginner or ignoramus, not realizing what he is doing, may attempt to ship three or four pounds by mail in a package so frail that it will let the bees loose in transit, resulting in a ruling barring bees from the privileges of parcel post. When we have developed a package that will prove to be a perfect success for expressage, then it will be time enough to try for the new postal privilege.

The obvious advantage of sending bees without combs across the country is so great that there will doubtless be a big traffic in the near future. Arrangements are now being perfected whereby bees can be shipped from the South to make up for death losses in the North early in the spring. Due announcements will be given in our advertising columns, with statement of prices, so that the beekeeper of the North, desiring bees to let loose on empty combs where his bees have died, will know just what it will cost to make a new start.

THE IMPORTANCE OF WINDBREAKS FOR OUTDOOR WINTERED BEES.

THE reader's attention is called to an excellent article by Mr. A. J. Halter, in this issue, page 55, on the subject of windbreaks. It will bear careful reading because it strikes at one of the basic principles of successful outdoor wintering.

We are coming more and more to believe that, while double walls and packing are important for outdoor-wintered bees, suitable windbreaks, or something to break the force of a clean sweep of the wind, are equally important. We have known excellent wintering in single-walled hives that

were well sheltered by buildings and shrubbery. We have known of poor wintering in double-walled hives, subject to exposure to the prevailing winds, especially when the entrances faced those winds. Just notice how the dumb animals in the blast of an on-sweep of wind will turn their backs to the wind. The dogs of the polar regions, that will stand more cold, perhaps, than any other living things, have heavy bushy tails; and when not in motion they will stand with their backs to the wind, and the aforesaid bushy tails afforded them a protection that is invaluable. Similarly we have noticed that hives with their backs to the wind will winter better than those facing it; and invariably we find that those in the exposed portions of the apiary will suffer much more than those sheltered by shrubbery, trees, or buildings. Last winter gave us some examples of "deadly parallels." At our Clark yard were some hives upon a knoll facing a half-mile strip of free country. In the same yard were other hives located in low ground among low-spreading apple-trees and brier bushes. The last named came through in fairly good order, while the first mentioned were practically all dead by the first of March. We found the same "deadly parallel" at our other yards. At our home yard there was a bunch of colonies just in front of an opening through the evergreens facing north. These bees nearly all died, or were so weak that they might as well have been dead. Those back of the evergreens, especially in the lower portions of the apiary, wintered in very much better condition. If the reader will turn to the cover page of our Dec. 15th issue, he will see the kind of evergreen for windbreaks which we have found to be most satisfactory. They "do the business."

This winter, for the purpose of experiment, we left one apiary, the waterworks yard, on a high knoll, where it had been all summer, with a windsweep from the north-west, west, and southwest, with practically a mile of almost free country. When we located that apiary, we did not intend to leave it at that location all winter; but late in the fall we thought we would try it out for a few weeks to determine how the bees would stand this exposure of wind. They were all in our latest double-walled packed hives; but in spite of this protection we noticed in the month of December that some of the bees were beginning to dwindle, and that they were using stores faster than the bees of the other yards sheltered by windbreaks.

Our Brunswick yard was located about 9

miles to the north. It was on a sort of side hill, but so situated that it could get a strong windsweep from the south and north-east. These bees were packed in winter cases—cases that ordinarily have given us good results. But as in the waterworks apiary we found the bees were beginning to dwindle, showing that they too were suffering. It became necessary, therefore, to move both yards of bees home and put them in the cellar. This was done on sleds in the snow. How this was done will be fully explained later.

Now, then, let us take a look at the bees at the other yards, packed in precisely the same way—double-walled hives, no better nor stronger in the fall than those at the waterworks and Brunswick yards, but well protected by windbreaks of woods and shrubbery. Presto! we found an entirely different condition. One such yard is located in the midst of woods. Another apiary, next to our factory, is surrounded by tall evergreens shown on the front cover of our Dec. 15th issue. Another yard, the Harrington, is located in an orchard with low shrubbery and apple trees on the north; a piece of woods on the west, apple trees and shrubbery on the south. All the apiaries had an equal and a fair chance. All were well fed up for winter, and all were equally well housed. As already reported, the two yards that we left out in the open, subject to windsweeps, were losing bees and stores; those that were sheltered from the wind were in excellent condition.

We have never had any difficulty in wintering bees outdoors when placed in double-walled hives properly protected with windbreaks, except in extraordinarily cold weather such as we had a year ago; and as these very cold winters come only once in about thirty or forty years it is hardly worth while to take them into serious account; and when they do come, the bees should all be put indoors in the cellar.

If the reader of these lines discovers that his bees are exposed he can very easily move them, if cold weather has set in in his locality, to a more sheltered location. We recently moved a yard of 90 colonies about 1000 feet to the west on a sled. On the north and west is a big mass of woods. On the east side of it is a grove of basswoods. On the south is a slight knoll and some low shrubbery. The most perfect windbreak that we know of is an open spot inside of a piece of woods. A mass of undergrowth consisting of brier bushes and low-spreading trees we would place next, providing they surround the apiary, or at least are on the sides from which the prevailing

winds come. Farm and out buildings make an excellent protection.

We have come to attach less importance to a high board fence on the north and west than we formerly did. The trouble is, the wind strikes it, glances upward, when it is struck by the on-impelling blast overhead, and then glances downward. At our basswood apiary from which we have just removed 90 colonies to a more sheltered location, we found there was one row of hives where the bees would die more than anywhere else in the apiary. The drifting snow shows how the wind would strike those hives and then rebound, apparently, and skip the other rows, which would winter better.

The objection might be raised that bees, if put in an inclosure of woods, will wear out their wings in flying through the brush or trees. To a certain extent this is true; but the most of them will ascend almost vertically until they reach a height sufficient to clear the obstruction. In doing this they clear all domestic animals in the fields near by, thus avoiding trouble with neighbors. When an apiary is located near a line fence next to an open field the bees are apt to fly in such droves that they are liable to attack the farmer and his horses in plowing, cultivating, or in haying and harvesting. We have, therefore, come to the conclusion that all apiaries should be located, as far as practicable, remote from a line fence, and so inclosed that the bees will have to fly high, where they will not bump up against live stock in great droves. When they descend they will be so scattered that they will prove to be no menace to either man or beast.

We shall be glad to hear from some of our subscribers and correspondents, because we believe that a thorough discussion of this matter of windbreaks will show their very great importance. While they have little or nothing to do with bees wintered in cellars, we should remember that probably only about a tenth of the bees in the country are housed indoors during winter.

We are also pretty well convinced that this matter of windbreaks is of supreme importance to beekeepers located in the southern States. If there is a place where one suffers from cold it is in a semi-tropical climate during winter. The atmosphere is chilly and damp—so disagreeably cold that it seems to go clear through one's anatomy. We are convinced that damp chilly weather is about as destructive to bee life in the South as the cold dry weather in the North. In fact, for our own comfort we would prefer the latter.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

CHARLES S. SHARP, feeding dry cube sugar, p. 30, is a fine thing in some cases, *with* the proper moisture; but I'm afraid the beginner can not count on that moisture in all cases without supplying it.

P. C. CHADWICK, I don't know about your locality. May be, as you say, p. 5, it takes a lot of bees to defend large entrances, but here, in the height of storing, I've some doubt whether any bees lose time merely as guards. At any rate, I believe a larger force is needed for ventilation with a small entrance than for defense with a large entrance.

A. I. ROOT, you say, p. 36, "Is it not true that some of our experts *always* get a crop of honey more or less?" While an expert might get a crop where a bungler would fail, it might be nearer the mark to say there are *localities* where there is always a crop. If there is no honey in the flowers there will be no crop, expert or no expert, and there might be a locality always so good that even a bungler could never fail.

MORLEY PETTIT, referring to a Straw, p. 754, in which I say, "European would have to be pretty bad if you couldn't find two healthy combs in every diseased colony, at least that is the case in this locality," replies, "In the locality of Ontario you would have to put the word American instead of European in that sentence. When we find European foul brood in one or two colonies of an apiary, we can rest assured that we do not need to go any further, for it is practically certain to be in every colony in the apiary, and in every brood-comb. I suppose the fact that it is found mostly in apiaries of black bees makes it so much worse with us." Thanks for that much more light, Bro. Pettit, even though the darkness be yet somewhat profound. [This is a surprising statement concerning European foul brood. We have never had any experience with it, we are glad to say. We should like to inquire whether others have had the same experience.—Ed.]

"We have not yet seen the cellar where the ventilation was as good as outdoors," p. 790. Strictly speaking, no. Yet if you'll go down cellar with me, Mr. Editor, I think you'll agree that the difference is not recognizable. At this present moment, with 37 degrees outdoors and 53 degrees in cellar, the door is wide open. When cold enough to close or partly close it so as to keep up to 45 degrees, the difference outside and in

makes a rapid change of air so that it is always pure. [Those who recommend outdoor sleeping-porches for the treatment of tuberculosis claim that there is a big difference between porches and a ventilated room inside of the house. If there is any thing in this, the quality of the air outdoors is very much purer and better than that inside of a building that receives its air through a door. Relatively, however, the difference may not be so great. But there is one thing sure, doctor, we do not believe you would run the risk of dropping your cellar temperature to, say, the freezing-point, 32 Fahrenheit, within your cellar; and yet it is conceded that outdoor bees will stand the freezing-point very nicely, and come out in fine condition the following spring. They will stand all grades of temperature, providing it does not go below ten above and continue there too long.—Ed.]

NOT often are two such interesting articles brought out as in the friendly Lovell-Ryan controversy, pages 654 and 771. As a beekeeper of the rank and file, I should incline to the opinion that bees may be attracted by the odor of honey where color can play no possible part, and also that color plays even a more important part than odor when it comes to bees and flowers. But more interesting to me than this is the Crane-Ryan item. Mr. Ryan says, "It seems rather out of the way to speak of the Man-God as learning any thing from the hills and valleys, flowers, etc.: If I mistake not, he was invested with all human science, and had naught to learn from his own creatures." Surely reason would point in that direction. Of him it is said, "All things were made by him; and without him was not any thing made that was made." And is it reasonable to believe that he would learn from the objects of his creation? Plainly Bro. Crane is following something else than reason. And I must confess sympathy with his view. I like to think of the Savior of men as very God in the highest and fullest sense of the word, and yet at the same time, in some mysterious way that I do not pretend to understand, as being a man just as much as I am a man, who had to learn things just as I have had to learn them. Moreover, if Bro. Crane has no reason for his comforting belief, he has something higher than human reason; he has the word of God, which says, "And Jesus increased in wisdom."—LUKE 2:52.

SIFTINGS

J. E. CRANE, Middlebury, Vt.

In the discussion of cases and carriers, p. 683, Nov. 1, there is this to be said: That honey needs much more careful packing to go safely in cool or cold weather than when the temperature is up to about 70 degrees.

* * *

The bulletin recently issued by the Department of Agriculture on the management of bees for the prevention of swarming and securing surplus comb honey is, I believe, one of the best things we have along this line. Every beekeeper should secure a copy.

* * *

Mr. Doolittle's advice, p. 687, Nov. 1, about selling the year's honey crop, is certainly orthodox, and all right for the beekeeper without much experience; but the season is longer than formerly, and we have calls now for comb honey from July till March.

* * *

The reason why that swarm hung on a limb all the fall without building any comb, p. 743, Nov. 15, is not at all strange. It was, doubtless, because no honey was coming in. Bees swarm in some parts of Florida before the flowers yield honey, and I found last spring that it was impossible to get new swarms even to draw out foundation unless the bees were fed.

* * *

Mr. Doolittle's advice, page 723, is all right for hives with sealed covers; but where there are absorbent cushions that will allow the moisture to escape above, it seems to me quite too much ventilation to give. If we ventilated our sitting-room as much in proportion to its size it would make an opening across one end and four feet high, or about 65 square feet.

* * *

That editorial, page 717, Nov. 15, on the difference between the flavor of comb and extracted honey, is right to the point, and covers very fully the ground of putting up extracted honey. I can only add that every time honey is liquefied it seems to lose more and more of its original flavor, until, if repeated many times, it becomes only a soggy mass of sweetness.

* * *

The parcels post seems likely to prove a blessing to beekeepers as well as to the rest of mankind. This reminds me that I recently received by mail a section of comb honey from Paul Hunten, of Somerset, Col-

orado, without any breakage or leakage. The section was as handsome as the honey it held, and was simply enclosed in a corrugated paper carton; but the section was a special kind as described on page 732, Nov. 15, and well adapted to being shipped in this way.

* * *

Mr. Byer's experience with black Italian bees in a new yard is of general interest. I used to think that a black colony was hardly worth wintering; but of late years I find I can get almost as much surplus from blacks as from Italians, and I sometimes wonder whether the blacks have improved or whether the Italians have degenerated. I think more difference will be seen between the two kinds in a poor season than in a good one, and this may account for the great difference experienced by Mr. Byer.

* * *

The house apiary shown on the cover page for Nov. 1 certainly looks well. I have run across two or three in inspecting. There are some points in their favor, such as the lessened danger of stings and a chance to work in all kinds of weather. But on the other hand, the inconvenience and loss of light more than balance the advantages, to say nothing of the greater expense and loss of queens.

* * *

Major Shallard, p. 701, Nov. 1, gives some facts about bee paralysis that interested me greatly. I had the care of some bees last March where the disease existed, and I studied it from day to day. My first impressions were that the disease is caused by some kind of poison, and I found it hard to think otherwise. But why should but two or three colonies in a yard be diseased? I have found in two or three instances that a single colony of bees would gather honey in quite a different manner from any other in the same yard. These bees would either go further or would work on sources that other colonies would reject. Major Shallard's statements that some localities were much more subject to the disease than others would seem to confirm the idea of poison. Poison, I learned, was being used in the vicinity of the colonies which I just mentioned. The poison, I also learned, was often mixed with honey when used. Very much more study of the subject, however, will be necessary before I can assert positively or with much certainty that I am right.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

REPORT OF 23D ANNUAL CONVENTION.

The 23d annual convention of the California State Beekeepers' Association was held on Dec. 12, 13, 14, at the Y. M. C. A. building, Los Angeles. It would be impossible to give a report of the three days' session in detail. I will, therefore, mention briefly some of the most important points. Nearly all of the great honey-producing counties were represented. Many new faces were seen. Men from north and south worked side by side for results. No one man won more esteem than Willis Lynch, of Newman. C. Hauser, of Sacramento, and J. G. Gilstrap, of Ceres, were also strong factors in the convention. All were new to the annual assembly.

In many respects it was the most successful meeting ever held by this organization, the most pleasing features being that harmony prevailed, and that advancements were made on foul-brood legislation, so long hoped for. The bill is now ready to present to the State legislature, and has the solid support of the entire beekeeping fraternity. It is to be hoped we may be able to convince our representatives at Sacramento that they should pass it in the interest of this important branch of agriculture, for I think it is without doubt the most complete bill of its kind ever drafted for the protection of the beekeeping industry.

Mr. J. D. Bixby's remarks on black brood were eagerly listened to, for there is no question at the present time that is agitating the minds of the beekeepers of California so much as that of eradicating black brood or being able to combat it.

Mr. J. E. Plesants, of Orange County, had a very interesting paper entitled "Ridding a County of Foul Brood." This venerable gentleman told how he had in ten years reduced American foul brood from 15 per cent to $\frac{1}{2}$ of one per cent, which is a record well worth being proud of.

The paper of Mr. A. F. Wagner, of Imperial County, entitled "County Ordinances and their Value," created much discussion, and showed plainly the opposition to drastic county ordinances, but doubtless helped to crystallize opinions favorable to our proposed State law.

Prof. A. B. Ulrey, of the University of Southern California, spoke on "The Principles of Breeding."

Prof. Ralph Benton, of the same institution, spoke on "The Varieties of Bees as Nature Left Them," which was largely geographical in nature, describing the lo-

cation of different races and the surroundings that limited their natural distribution.

Then came two fine papers on queen-rearing, by Mr. Henry Perkins, of Artesia, and Mr. Geo. J. Brown, of Tusten. Both are young men, and have a great future in prospect.

At the evening session Dr. C. A. Jenks gave a very interesting demonstrative lecture on "First Aid to the Injured." While this was not on a subject in connection with the bee industry, yet it was valuable for its instructions as to what to do in case of emergencies. The most valuable part to the beekeeper was that relative to snake-bites, for there are few apiaries that do not have the rattlesnake as a visitor.

Willis Lynch, who has traveled around the world observing the different races of bees, told of bees as he found them in Hawaii, the Philippines, Borneo, India, Egypt, Italy, France, Germany, and England. His description of the large bee of the Philippines, as well as the smaller, was especially interesting, as well as how the natives of Borneo feast on the unhatched brood, preferring it to the honey.

Mr. C. Hauser's remarks on organization were timely and to the point, and deserve a place on the records of our association.

Of Mr. J. G. Gilstrap, I can say nothing better than that he came to work, and helped accomplish many of the advancements of the convention.

Mr. J. B. Neff, who conducted our beekeepers' institutes so successfully during the past summer, spoke on co-operation. Mr. Neff is in the Walnut Growers' Association, and knows the value of co-operation.

The association passed a resolution inviting the National to come to California in 1915. This developed a scramble between San Diego and San Francisco for a place of meeting, which was finally disposed of by leaving the decision to the National.

Riverside County presented a resolution adopted by that county's club relative to protecting the bee-ranges from brush fires. They have asked their county supervisors to appropriate a fund for fighting such fires, and to prosecute persons who carelessly start fires. I was especially glad that this action was taken, for I know of nothing that is more detrimental to the beekeepers of the sage-range country than to have their honey source destroyed.

Suitable resolutions were adopted in

Continued on page 47.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

THE SCHOLL IMPROVED HIVE-NUMBERS.

The accompanying illustrations will give a very good idea of the hive-numbers of my own design which I have used for a number of years. Though everlasting they are easy to make for any style of hive in use, quickly interchangeable from one part of a hive to another, or from hive to hive. No nails, staples, nor any thing of the kind are necessary to hold them in place; and in this way they overcome the greatest objection to practically all the hive-numbers so far invented. This advantage is especially

from one to another in case the hives are interchanged or changed end for end. They are easily made by simply cutting pieces of galvanized iron $2\frac{1}{2} \times 3$ inches, snipping off the two upper corners, as indicated, and then bending over the ends to hang over the upper edges of the hives. They are easily bent or folded over in any common bench-vise. By means of a small piece of hard wood the exact width of the upper edge of the hive in use, clamped in the vise, a gauge for each number-tag is obtained that insures all being folded alike.

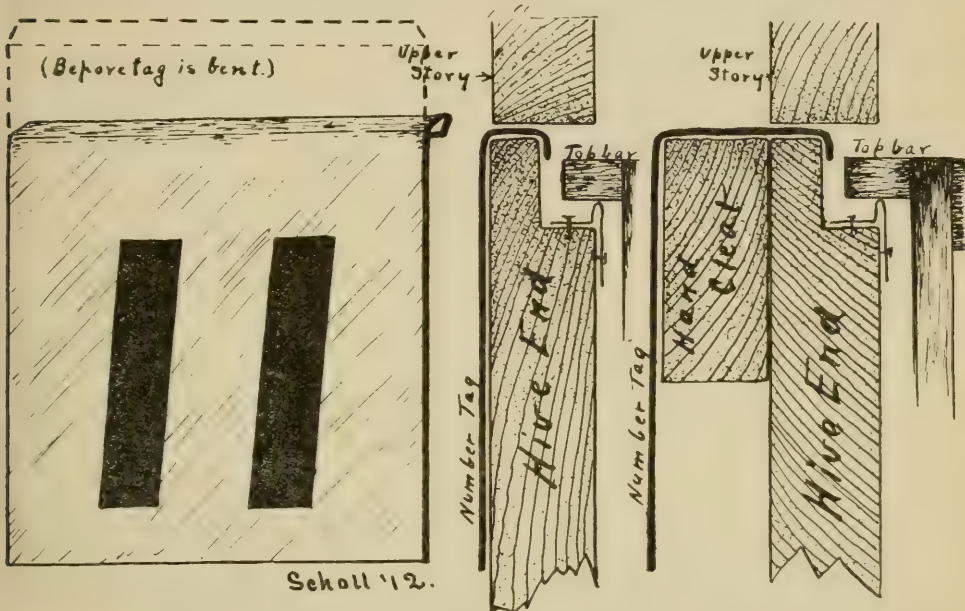


FIG. 1.—Scholl improved hive-numbers, showing how the galvanized iron is folded and adapted to various styles of hives.

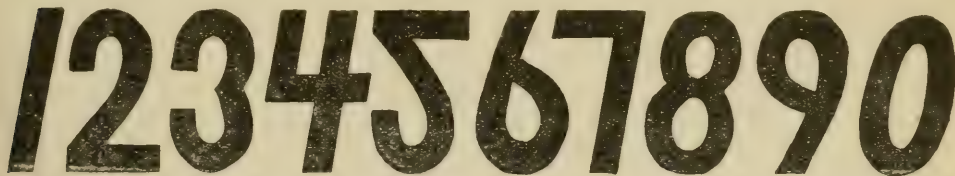


FIG. 2.—Numbers for the rubber stamps; simple, plain, and bold, hence easily read.

marked when hives are composed of many shallow stories, as with our divisible-brood-chamber hives. Then, too, in the old system of numbering it is a nuisance and expense to keep nails, staples, or hooks in proper repair, on each end of every deep hive-body or shallow story. I say on each end of every hive or story, because it becomes necessary to change the numbers

They are easily numbered by using a set of only nine numbers, as shown in Fig. 2. It will be observed that only one stamp is necessary for the 6 and 9, as the former can be reversed to print the latter. A simple home-made cotton pad can be supplied, covering the cotton batting with a piece of thin domestic. I used good solid black coach paint, and find that it lasts admirably. Of

Continued on page 59.

Conversations with Doolittle

At Borodino, New York.

FEEDING BACK FOR COMB HONEY PRODUCTION.

As the price of comb honey is much more per pound than that of extracted, I have been wondering whether I could not extract my honey next summer as I have usually done, and then, instead of selling it, feed it back to the bees and have them put it in sections. What do you think of this?

Feeding back extracted honey for the purpose of producing comb honey is something which has been often tried and frequently written about; but so many conditions enter into the problem that many of our most skillful apiarists have very nearly if not quite failed of success. From my own experience, and from what I have been able to learn from others, the character of the bees that are used is among the first in importance. If my experience proves any thing it is this: No financial success can be obtained with bees which are prone to store their honey close up to the brood in the brood-nest. Any variety of bees whose disposition is to cling to the brood-chamber, to crowd it with honey, and, when that affords no more room, to cease labor rather than to overcome the disinclination to pass beyond the limits of the brood-nest into a surplus apartment above, can not be successfully used in this plan of feeding back. In fact, such bees are hardly profitable for section honey, even though they may prove the very best to the one whose apiary is run for extracted honey. In selecting bees to be used for feeding back, no point is more important than that those should be chosen which are willing to enter and work in supers or sections quite distantly removed from the brood. The dark or leather-colored Italians, which prove to be the very best for extracted honey, are very defective in this respect, and they also give their cappings a dark greasy appearance by their plastering the scanty amount of wax used right down upon the honey. These bees can not be profitably used for section honey, to say nothing about comb honey produced from honey fed back. Carniolans, golden Italians, the German race, or crosses, in which black brood predominates, are superior for your purpose; though even among these, judicious selections may be made to a great advantage.

Then nearly if not of equal value with the character of the bees comes the character of the queen. The point to be looked after here is that the queen should be of such a make-up that she will have her hive well supplied with brood at the end of the honey-flow, when we wish to begin feeding

back the honey we have extracted during the flow. It is not so necessary that she continue her prolificness after the feeding has begun, more than enough to keep the colony in good condition for winter; but unless she has a hive pretty well filled with brood in all stages, when the feeding should commence, the colony will not have the numerical strength desirable, and there will not be enough brood in the combs to furnish the required reinforcements, as the work progresses and the old bees perish, in which case the finishing-up of the matter will result in failure, no matter how "rosy" the outlook at the start.

Next in importance comes the time for the white-honey flow in your locality. If the flow continues till late in the season, it is little use to try feeding back at all. If we can commence feeding comparatively early in the season we shall avoid, as far as possible, the disposition of the bees to store honey in the brood-chamber—a disposition which, with all varieties of bees, increases as the season wanes. Then we secure the great advantage of having the work done during the hottest weather, at which time bees produce wax and build comb with more economy than is possible after the nights become longer and colder. If we attempt feeding back before the harvest of white honey closes we shall lose all the bees would store without making a proportionate gain. In this locality the opportune time is immediately at the close of the basswood flow, about July 12 to 16, in the interim between this and the yield from buckwheat, which commences about August 15 to 20.

Lastly, we have the size of the brood-chamber. This, of necessity, should be small, otherwise room is given for the storage of a large amount of the honey fed, in which case this honey is of less value than was the case before we commenced operations. Then with a large amount of comb an opportunity is furnished for the production of an immense amount of brood whose value beyond a certain limit can not be great, and such brood means the consumption of a very large amount of the honey fed. I have had better success with a brood-chamber of about the capacity of five Langstroth frames than with one either larger or smaller; and by selecting such well filled with brood, the larger part of which is in the egg and larval form, a seeming advantage is gained.

Continued on page 59.

General Correspondence

THE IMPORTANCE OF KNOWING YOUR LOCATION

How the Absence of Pollen in the Breeding Season in the Spring May Ruin a Whole Apiary

BY A. B. MARCHANT

For the past fifteen years I have been keeping bees for profit. I have kept from 500 to 1000 colonies in three yards, running mainly for extracted honey, having shipped as much as 50 tons in one season. I have always reared my own queens, and the past two seasons I have gone into commercial queen-rearing, which has led to the discovery I am now writing about.

Last March The A. I. Root Company contracted with me for a carload of three-frame nuclei and a carload of ten-frame-hive colonies of bees. I knew this was a big undertaking; but, as the bees were not to be shipped until I had gathered the season's crop it seemed to me there would be a good profit in it. I accordingly made preparations to ship them; but before I made either shipment I had young laying queens ready to take the place of those that were shipped with the order. The hives from which I shipped those bees were left with about a three-frame nucleus. I immediately gave each a laying queen and began feeding to start brood-rearing. I then left the bees with my helper, and was gone for over a month, expecting to come back and find them in fine order, when, to my surprise, I found about one hundred dead and swarmed out. Upon investigation I found that the bees were destroying the eggs as fast as the queens could lay them.

I saw at once that something would have to be done immediately. I examined all apiaries near me, and found the bees weak, and queens not laying, on account of no pollen coming in. I have always known that my locality is short on pollen after the honey flow is over; but I had no idea it was as bad as this. So I decided the only chance for me was to buy bees and strengthen what I had left. So I began to look out for bees. Many times I have heard the beekeepers 15 miles south of me say they had swarms in February and March, and plenty of brood up till November; so I at once called on some of these men, and examined their apiaries. I found their bees in fine condition. I purchased one yard with 65 colonies and borrowed 50 from another beekeeper, and began to give out the brood to my weak ones. I had been in the business for fifteen years, and for the last ten years

I well knew that pollen was my difficulty in getting my bees strong in time for the honey-flow. I also knew that the beekeepers south of me built their bees up earlier than I did; but on account of my location being better for honey than those south of me I paid no attention to them.

After all these years I have found what I have needed in my own locality, and a way to get it. I am now moving my bees to these locations, and will keep them there until the first of April, when the tupelo bloom is open, then move to my present location and stay till June 1, then move back and stay till next April. In this way I can get a crop of tupelo honey, build my bees up for winter, and at the same time have an ideal place for queen-rearing and the shipping of bees by the pound, and nuclei of any size. This location I purchased with the 65 colonies. The owner tells me that he has drones flying in February and sometimes has swarms during the same month.

This place is located on an island; and, with the exception of one small apiary, it is five miles from any other bees; so it is a fine place for queen-rearing and pure mating of bees.

Sometimes it pays one to get into trouble. In this case I believe it will pay me. It goes to show it pays one to study his location and find out where the trouble is, and then try to overcome it.

Sumatra, Fla.

A NEW CURE FOR BEE PARALYSIS

A Disease Resembling Bee Paralysis Relieved by Feeding Syrup Containing a Physic

BY W. A. BARSTOW

Some may laugh at the strange treatment that I gave my bees when they were sick, but nevertheless my plan was a success. The bees in one of my colonies were dying in large numbers, their abdomens being unusually large; and when I picked them up in my hands a slight pressure would cause them to excrete a large amount of yellow liquid, which, when dry, looked like pollen. The bees trembled as though in distress, and it occurred to me that the intestines might be clogged.

My theory is this: When plenty of honey is coming in, the bees may show no sign of sickness; but later in the summer or fall the bees may get some honey containing pollen that might be poisonous, or that has soured, or grown moldy to a certain extent; so that, when they feed on it, it is in the

right condition to cause what might be called constipation. At any rate, if there is no relief the bees die in great agony. In this condition they crawl out of the hive with their wings stretched out or lying close to the floor, and they roll over and tremble, and at times seem to lose control of themselves. They have a greasy appearance, and their abdomens seem to be so distended that the different segments hardly meet. They go to the edge of the alighting-board, and fall to the ground in great numbers and die.

I am not a doctor nor a medicine man, nor even an expert beekeeper; but I decided to try a remedy that occurred to me. I made a syrup of equal parts of sugar and water, and then mixed with it about a fourth of a teaspoonful of *herbine*, a medicine which we get here at the drugstore. I poured some of this syrup into an empty comb and set it at one side of the hive, and the bees quickly emptied the cells. The next day the hive was fairly covered with brown spots, and one would almost need an umbrella in the apiary, for the medicine took quick action. I suppose almost any kind of strong physic would answer, but the *herbine* is all that I happened to be able to get.

Later on, the bees in this colony were sick again, and I tried feeding syrup alone, but it had no effect. Then I added the medicine, and it worked as well as before.

Two more colonies were diseased, and I gave the bees the same treatment and with the same result.

My colonies are all right now; but if I have any trouble I intend to shake the bees on empty combs and give them a new supply of medicated syrup to take the place of any bad stores they might have had.

San Jose, Cal.

[This looks like a case of bee paralysis. If so it might not disappear of itself without treatment. Was the medicine responsible for the cure of the trouble mentioned? We should be glad to have others try it and report.—Ed.]

THE ADULTERATION OF HONEY, AND WHAT IT MEANS TO THE BEEKEEPER AND DEALER

BY HENRY REDDERT

Up to a decade ago, before our national Government enacted the pure-food laws now in force, widely distributed eatables of all kinds, including honey, were found adulterated to some degree. It was said at one

time that 40 per cent of the honey sold in Ohio alone was mixed with ingredients foreign to its own kind. We know of cases where small dealers, eager to make the most money out of a given quantity, mixed it with sugar syrup the moment the farmer selling it left their store. But the practice has been abandoned, so far as we know, simply because they fear the sting of prosecution.

Large dealers, as a rule, were honest. If not, their business lasted but a short time. It was the small consumer who suffered most, the large buyers having skilled inspectors at their warehouses—a fact known by the sellers. I remember when honey that was purchased from any one excepting the beekeeper was considered impure, even if the dealer guaranteed it. Even up to the present day this supposition is still found, but mostly among people who know very little about honey. Recently a lady said to me, "I buy your honey because you have bees." I told her that I knew dealers in the city who also had pure honey, but she still insisted that the beekeeper's honey was better.

Frequently we read an article in the daily newspapers about artificial comb honey, colored and mixed strained honey, sugar syrup, etc. All have their share of condemnation. One year my son sold the larger part of my crop to druggists in one city. The honey was very light. He had solicited their orders by a small sample in a clear white-glass bottle. One refused to take the gallon he had ordered, saying it was colored, because the density of the honey in the tin bucket didn't admit the clear and light color of the sample. Of course, he should have known better. This case shows that even men of science are baffled as to the purity of honey.

A beekeeping friend relates this incident: A grocery and daily-market owner bought a quantity of his honey for his own table, saying, "When I buy your honey I know it's pure." My friend replied, "What's the matter with the honey you sell?" He answered in broken English, "Dey always put a little in."

Why is the consuming public so doubtful? Simply this—even now we have beekeepers and honey-dealers who believe they have found a recipe to improve the color and taste of their product. Every purveyor of honey should bear in mind that the education of the general public in the elaborate use of honey instead of other syrups depends largely on the purity of the article. By all means, don't mix. Every now and then the newspapers cite cases where this or that firm or person has been fined for

violation of the pure-food act. Let us conduct our business in such a manner that every consumer will be thoroughly convinced the honey he eats is pure, whether purchased from a dealer or beekeeper. In the long run, honesty is always the best policy. Cincinnati, O., Dec. 8.

BEEKEEPING IN CALIFORNIA

BY P. C. CHADWICK

Continued from page 42.

memory of prominent beekeepers and members of the association whom death has claimed during the past year.

Mr. W. H. Allen, of Ventura, asked that the report that Mr. Corey brought the first bees to California be corrected, as Mr. Corey never claimed that honor. Mr. Harbison shipped the first bees to the State that we have record of, but said he found others here when he arrived. Mr. K. M. Henneken, of Monterey, said that the Spanish fathers had a record of bees having been brought here some time during 1700.

The annual election of officers resulted in President Farrer and Secretary Shaffner being re-elected to their respective offices. J. G. Gilstrap, of Ceres, succeeds Ralph Benton on the executive committee.

Action was taken looking to the establishment of a bee journal for the association.

* * *

NOTES FROM THE CONVENTION.

J. D. Bixby condemned old combs as being detrimental to beekeepers when fighting black brood. This position was also taken by W. G. Hoore.

* * *

Owing to sickness, Geo. L. Emerson was not seen after the first day's session. Mr. Emerson is one of our old war horses, and that he was missed goes without saying.

* * *

Mr. C. Hauser, of Sacramento, had some honey from carpet grass (*Lippia nodiflora*) at the convention. It is a beautiful white in color, and has about the mildest flavor of any I have ever tasted.

* * *

Mr. K. M. Henneken, of Monterey County, told of a colony of bees that produced honey to the value of \$38.00 in a single season. This gentleman was inviting beekeepers to come to his county with bees to help save the wasting nectar. It really seemed strange to have a man asking beekeepers to come with him instead of sending them word that there was a foul-brood fence up to keep them from sending bees in from

any locality within twenty-five miles of some other place.

* * *

Spraying black-brood combs with strong brine and allowing the salt to crust thereon until ready to use to protect from moth and kill disease germs was a plan spoken of by Mr. Bixby. Although he lays no claim to having originated the idea, it is said to work successfully. The combs are dipped into the water in order to remove the salt before being used again.

* * *

A word of praise to the deserving is never amiss, so I say that, when President J. W. Farrer and Secretary A. B. Shaffner were unanimously re-elected to their respective offices, their efforts of the past year were recognized.

Sec. Shaffner during the past year has written more than 600 letters, and has addressed thousands of reports and bulletins, for which he would not even accept the meager \$25.00 which was his by virtue of his office.

* * *

Colorado claims to have 27,000 colonies of bees. Los Angeles County, Cal., is said to have 60,000; Imperial County, 12,000, and from the best information at hand I feel safe in saying that there are 250,000 colonies south of the Te hatchapi. No wonder beekeepers complain of being a little crowded in places. I have no figures on the number in the San Joaquin and Sacramento valleys or the upper coast country; but that California has "some bees" is a foregone conclusion, and there are thousands of colonies in the State that never figured in the last census.

* * *

As a matter of information to the California beekeepers I wish to say that our exhibit at both the San Diego and San Francisco fairs in 1915 will be under the supervision of Mr. M. H. Mendleson, of Ventura. The writer will be Mr. Mendleson's secretary, with H. J. Warr, of Perris, in close touch. I wish I could impress upon the California beekeepers the necessity of beginning now for this exhibit. We have an opportunity before us to astound the world with the grandest exhibit of our products ever seen. We must have money, honey, and nice wax in just as liberal quantities as we can afford. We want as many kinds as California produces of as near pure honey of its kind as can be secured. Brother beekeepers, this will doubtless be the last time in the lifetime of at least the older of us to see our industry crowned

with an exhibit that will show to the world that we are able to grasp an opportunity presented at our door. Every beekeeper in California could set aside at least one case of honey or the proceeds from a case to help with the exhibit. We also must have the finest of comb honey in liberal quantities. Begin your plans now for helping to make it a grand success, for it will be a monument not only to our industry but to the State as well.

* * *

During convention time I busied myself talking with members regarding the flora of various parts of the State, and the quality of honey produced from different flowers. I was especially anxious to learn, if possible, whether alfalfa produced different colors of honey in different regions, or whether the difference in color is due to the mixing of darker grades with the alfalfa. I have always doubted the claim of some that it produced different colors in different soils. The opinions of those I questioned were about evenly divided, but several to whom I spoke were emphatic in saying that it is other darker grades mixed in the alfalfa that give it the darker color, so until I have stronger evidence on the question I will remain of the opinion that it is no more inclined to do so than is the button sage, the orange, carpet grass, or any other of our forage plants.

A NEW PLAN FOR REQUEENING

Allowing Queenless Bees from a Strong Colony to Unite Slowly with a Nucleus Containing the Young Queen

BY A. V. SMALL

It is often desirable to requeen a good many colonies late in August or early in September—first, because the apiarist has more time to give to queen-rearing at that season; and, second, because the August-reared queens usually prove vigorous layers the following year. But at such a time as this, when the best of the smartweed is gone, and there is a hint of fall in the air, the bees sometimes refuse to accept a queen introduced by the ordinary cage plan; also some colonies are very irritable when the late honey-flow tapers off; and to hunt for queens when bees are cross is a disagreeable job.

The following plan is original with me; and while I have used it only one season the results have been very satisfactory: My queers are mated in nuclei of from two to five full-depth frames. After the young

queen has begun to lay, and some of the larvæ have hatched, I lift out one or more of the frames with brood, adhering bees, and the queen, and place them in a hive-body on the stand of the hive I want to requeen, putting over it a screen with a spool plugged with queen-cage candy tacked to the under side of the center of the screen, where there is a hole the same size as the hole in the spool. On this I put an empty brood-chamber with a feeder of thin syrup. This I cover with a bee-escape board, and finally I set on the full colony that is to be requeened. This is done in the evening after the bees have stopped flying.

The next morning, when the bees of the full colony pass down through the bee-escape, they find themselves with a feeder of thin syrup in the empty hive-body, separated from the full colony and old queen by the escape-board above, and from the nucleus below, containing the brood and young laying queen, by the screen wire with the candy spool. In this queenless, broodless, combless condition they realize that there is something wrong. They have lost their old home and their old queen. By the time they have eaten their way through the candy spool they are fairly crying for a new queen, and are more than willing to unite with the nucleus. The strong point in this plan is that the bees are made to feel the desire for and the need of a queen; also notice that this large force of bees from the old colony is composed of the strangers, and that the little nucleus force is at home in the sense of possession.

In a day or two the old colony on top will have only a few bees, and the old queen can be found easily, and removed, after which the combs and what bees are on them may be put in the lower hive, the two empty hive-bodies removed, and the work is done. One colony that was requeened by this plan had been queenless for nearly three weeks. No fertile workers, however, had appeared. I should like very much to try this on a colony that did have laying workers.

At a time when there is no honey to gather, and the bees are loafing instead of going to the field, they are slow to pass through the escape. At such times they can usually be induced to pass the bee-escape, in an attempt to go to the field, by placing a small feeder of thin syrup in an empty super above the full colony.

From my experience last fall, this plan will work up to the time it is too cold for the bees to pass readily through the bee-escape.

North Topeka, Kans.



FIG. 1.—Robert Stites, of Colorado, preparing his winter cases.

SOME BEEKEEPERS OF COLORADO

BY WESLEY FOSTER

Mr. Robert Stites is one of our newer beekeepers in Colorado; but he is going at the business right, and we expect him to make a success of it, as he already has in the arrangement of a very neat apiary. He lives but one or two miles from Montrose, and his apiary overlooks the Uncompahgre Valley, giving a beautiful view of this rich agricultural and fruit section. We found Mr. Stites at work upon his winter cases, one of which is shown over the first hive in Fig. 1. He lost most of his bees the winter of 1911, and he does not expect to have another like experience if preparation will avoid it. The space between the hive and the outer case he will pack with leaves, chaff, etc. This winter he has packed them

with dried horse manure. An empty super filled with chaff goes on top, and an outside strip goes around the super to cover up the space at the top of the winter case. The bottom-boards are made several inches larger than the hive, so that the winter case will just fit. I do not know whether Mr. Stites plans to bank up around the bottom-board, but I should think that space would be cold for the bees during very cold weather, with only the inch board between them and the outside.

Fig. 2 was taken near Mr. Robert E. Foster's apiary in Montrose County, Colorado. Mr. Foster is standing beside a clump of greasewood. Greasewood is a native of the desert, growing, however, on the lower levels, but rarely found upon the well-drained mesas. It is quite a favorite with the bees, the large yellow clusters of bloom



FIG. 2.—Robert E. Foster standing beside a clump of "greasewood."

attracting them in large numbers. The resemblance to goldenrod is quite marked.

Mr. Foster is apiary inspector for Montrose County, and has done excellent work in reducing the prevalence of foul brood.

Over to the south of Fruita, in Mesa County, Colorado, rise the rocky sides of the mesas. Along the foot of the cliffs flows the Grand River. Sloping gently to the north and east from the river for several miles is some of the best land on the western slope. Apples and peaches are grown by the hundreds of carloads. Alfalfa, sugar beets, and general farming operations are followed by many. Much of the land, however, has become seep land from the application of too much irrigation water or the running of ditches and the application

of water to land lying higher up; and over much of this seep land sweet clover grows, making of this district a valuable honey-producing section.

Mr. F. B. Hill lives about three miles east of Fruita, and has the largest and best conducted apiary I have seen in Colorado. Three long sheds, one of which is shown in the illustration (cover picture for this issue) shade about 120 colonies each. The advantage of these sheds is very apparent if one visits this country in August. The alkali-covered ground reflects the sunlight with a blistering glare. The intense light deceived me, and I over-exposed two films so that they were worthless, and the film this was taken from was so dense it was difficult to get a good print.



FIG. 3.—One of the rows of hives in Mr. Babberger's artistic garden apiary.

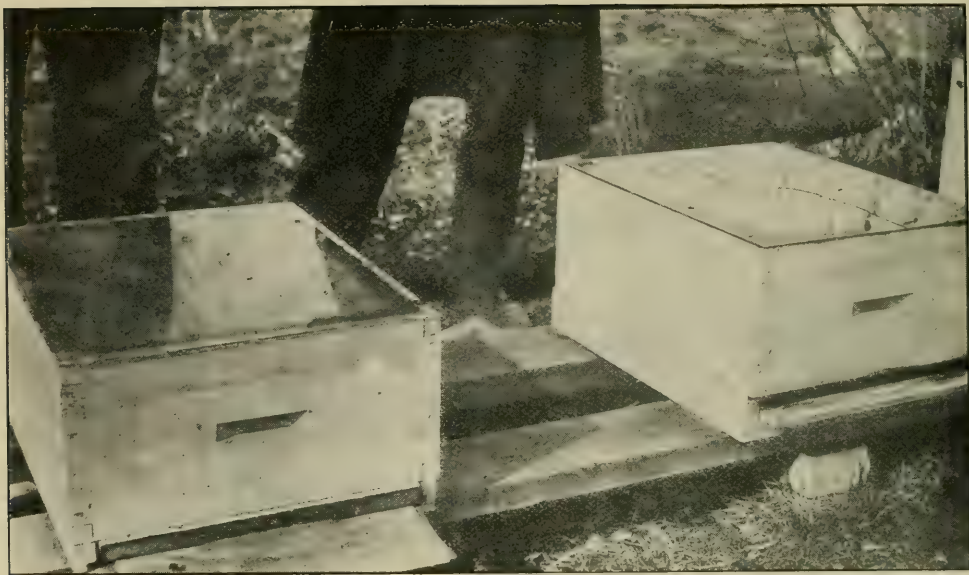


FIG. 4.—Panes of glass used as super-covers or honey-boards.

Mr. Hill “flags his queens,” as his hives are so close together in the rows. Different-colored rags are tacked on the fronts of the hives; and red, green, black, etc., spots are painted upon others. A few of the hives have the entire front painted a different color.

Mr. Hill operates his apiary for comb honey in 4 x 5 plain sections, and he secures a beautiful product. He uses shallow extracting-supers early in the season, taking them off and placing them below the brood-chamber when the comb-honey supers are put on. These extracting-supers are left below until fall, when they are removed and put away till spring. They are then put on top full of honey for the bees to use in breeding up. Mr. Hill told me that he sold \$1800 worth of honey this year from his apiary. He operates only his home apiary, having no outyards.

Several months ago I told about the beautiful Canon City fruit district—its sylvan country homes, pretty country lanes, and delightful climate. Now I want to tell you of one of our beekeepers there.

Mr. Babberger is an artist photographer, a fruit-culturist, gardener, and beekeeper. He is a shrub and flower lover, and his little Dutch garden beside his house reminds me of my friend and neighbor Karl Dehn, whose particular passion is dahlias. (I wish you might hear Mr. Dehn pronounce “dahlias” and hear him talk flowers.) Mr. Dehn learned his flower gardening in Berlin; and whether Mr. Babberger gardened

in Berlin I do not know; but his little garden and apiary are worthy of his fatherland.

Mr. Babberger considers his work in the studio far too confining and also too mercenary. People want only cheap pictures, and he does not make that kind. His pictures are worth his price; and when we had our beekeepers meet Dr. Phillips in his studio, Mr. Babberger had his honey piled in the reception room, and he was charging a price commensurate with what he considered it worth. He was asking \$3.50 a case for his comb honey, and was getting it. Some others were selling for \$2.50 and \$2.75; but Mr. Babberger would not sell for such a price.

Probably scores of fruit-growers—neighbors of Mr. Babberger—have stopped when driving past his apiary to admire the white rows of hives between the apple trees, one of which is shown in Fig. 3.

Mr. Babberger harvested 2300 sections of honey from 25 new swarms, and has always counted on ten dollars' worth of honey from each hive. The spraying for the leaf-roller destroyed a good many of his colonies last spring, so that his crop was very small.

If we could have half a dozen beekeepers in each county like Mr. Babberger they would have a wonderful influence in raising the standards of bee culture. Mr. Babberger uses the Danzenbaker hive and 4x5 sections. One of his special hobbies is the use of panes of glass for honey-boards.

He claims for them many advantages, chief of which is the ease of diagnosing the condition of the colony without disturbing the cluster. The glass requires cleaning about every two years. Two hives with the glass in place are shown in Fig. 4.

Boulder, Colo.

BEEKEEPING IN WEST FLORIDA

S. S. Alderman a Progressive Beekeeper for Forty Years

BY J. J. WILDER

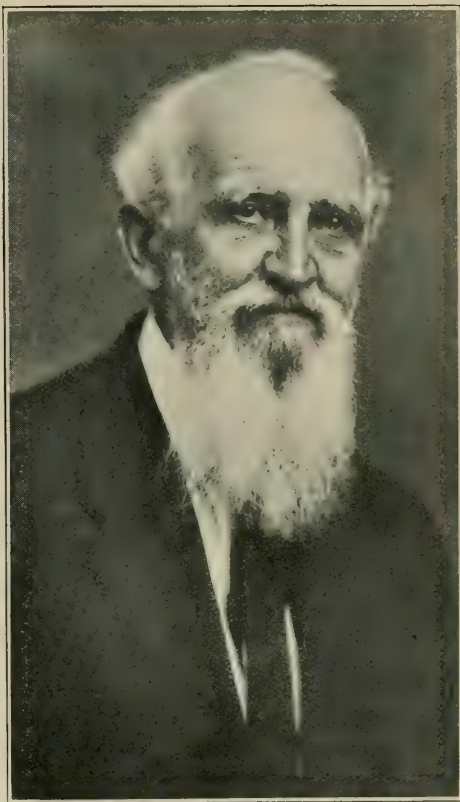
This year I had the opportunity of making a 3000-mile tour or ramble visiting beekeepers over the Southeast, and it was my great pleasure to meet some of our old landmarks in beekeeping; and among others were Mr. J. K. Isbell and S. S. Alderman, near Wewahitchka, Fla. Both gave me something of their ripe experience in beekeeping, and Mr. Alderman gave me his photograph and some data regarding his experience. His letter follows:

The first bees I owned were bought in 1872. The apiary was located at the "Old Fort" place, 7 miles from the postoffice now known as Wewahitchka, Calhoun Co., Fla. This embryo apiary of 70 hives was turned over to the care of a young man, J. B. Roberts, who was a natural apiarist, but he knew nothing of the advanced methods of beekeeping. I persuaded him to try new hives, and we worked together for twenty years, during which time we increased the number of hives to 700 at the "Old Fort" place. At this period I began to scatter the apiaries, placing the bees near the feeding-grounds, until I had six apiaries, numbering in all about 1400 stands. The yearly yield from this number was 84,000 lbs., which was extracted and shipped in barrels to New York and Boston.

The principal flora from which the crop is gathered is the tupelo gum and the orange bloom. This latter flower is a favorite of the bees, and suggested to me my trade-mark, "Orange Bloom," which I had patented about 1880. The "Orange Bloom" has one great advantage over any other honey, it will keep for ever without granulating. This "Orange Bloom" honey took the first premium at the Atlanta Exposition, and I was awarded a medal.

I was born in Marianna, Fla., March 19, 1835. My parents were both born in England. I have been engaged in the honey and orange business for more than 40 years, having been blessed with fine health most of the time.

Mr. Alderman was a good beekeeper the year I was born, or 40 years ago, and all the way down the line of years he has been a good and progressive beekeeper—not in and out, but year after year he has continued in his main line of business, that of producing "Orange Bloom" honey. He has produced trainloads of it, and has thereby gathered up around him considerable of this world's goods—at least enough to make him very comfortable in his old age. He spends the summers up in the mountains of North Carolina, and the winters at



S. S. Alderman, of Wewahitchka, Florida, an up-to-date beekeeper for forty years.

his Florida home, which is a beautiful one located on an island on the Chipalo River. His home is surrounded by a beautiful orange-grove on the east and south side, and along by the front flows the beautiful river. A more beautiful or more modern home can not be found in our Southland.

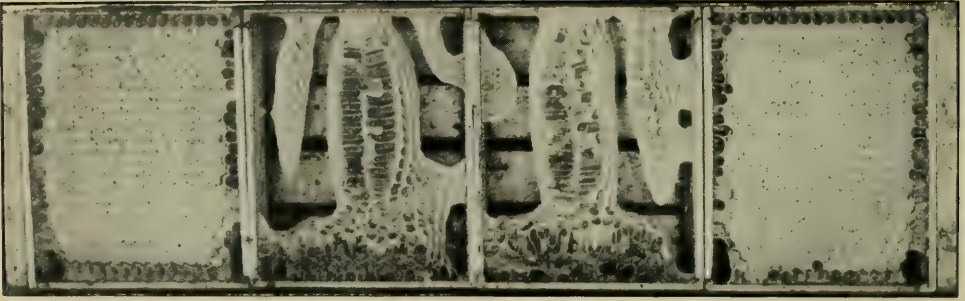
A glance at the face of this veteran beekeeper will show that he has been wonderfully blessed with health. It is strange that he has not been a great writer on bee culture, for he is very intelligent. A better type of beekeeper can not be found in all beedom.

Cordele, Ga.

WHY ORDERS FOR QUEENS CAN NOT ALWAYS BE FILLED AT ONCE

BY PENN G. SNYDER

With reference to Mr. Lewis P. Tanton's article, page 581, Sept. 15, I have made it one of my business principles to reply as soon as an order is received. I use a printed post card that requires only the name of the purchaser and date the order



The effect of poorly attached starters. Notice the combs in the two middle sections have fallen, leaving a space for the bees to fill in to suit themselves.—Sires & Sires, Wapato, Wash.

will be filled. To say the least, however, it is difficult to guarantee to have queens on a given date.

There are several distinct reasons why the expected queens may not make their appearance as expected. "There's many a slip 'twixt cup and lip" is a very true statement when speaking of bees. Our bee pets(?), as we all know, sometimes disregard all rules, regulations, and standards, and apparently set out to see how mean they can act.

One of the many things that sometimes happen is that, after the cells are started beautifully, a couple of days later they may be cut down. They may be chilled or possibly jarred in handling. An unexpected queen-cell in the brood-frames might hatch and destroy them, or a small virgin from an unknown source might get through the protecting zinc which I use to cover all entrances of cell-building colonies.

Then there seems to be nothing easier for the queenless bees in nuclei than to destroy the cells or virgins given them, or for the virgins to disappear while on their mating-trips.

The queen-rearing business is not all "beer an' skettles," as one can readily find out by making an experiment when conditions are not favorable—when there has been no honey gathered for a month or so. Under the best of conditions it is easy to obtain plenty of good queens; but when conditions are the reverse, then comes the need of skill, patience, and knowledge. Then the weather plays a very important part in determining the success of all efforts, to say nothing of the honey-flow.

Yet all this can not excuse the queen-breeder in not replying *at once* to all orders as all up-to-date business men do. He can at least promise, and then do the best he can to fill the order on the date promised.

Personally I can heartily agree with Mr. Tanton in his arraignment of the greater

number of the producers of bees and queens. It is more than annoying to send an order, and receive no reply, possibly, for weeks—an experience I have had repeatedly in years past. "None but the brave deserve the fair." We bee-men can change the above quotation to "None but the prompt deserve our orders," provided they are filled with good stock in good condition.

PURE GOLDEN BEES ARE NOT CROSS.

I have a growing complaint to register. The editor invariably, in speaking of "Goldens," states that they are often very cross, also that they winter poorly. Now, that may be true of some of the strains composed of more or less Cyprian blood; yet in the manner in which the term is used it gives Goldens as a whole, irrespective of strain, a black eye.

I have in my home yard about 80 colonies of Goldens, to say nothing of nuclei, and I do not use a veil on an average of one hour out of ten while working in this yard. I can give names of many beekeepers who have been in this yard, who have seen me, without smoke and without preparation, and, last of all, without stings, open colonies containing eighteen or more combs of brood. Just after a rain, or during one, I have frequently opened the hive containing the breeding queen, and have received *no stings*.

Two years ago I sold to a gentleman in Porto Rico a two-frame nucleus with a tested queen. When the hive was full of bees, and they were working on the supers, his two young sons were discovered grabbing out the honey by the handfuls from the extracting-combs. The children were more or less covered with bees, yet neither of them received as much as one sting. Are such bees cross?

Swarthmore Apiaries, Pa.

[Undoubtedly there are many colonies of Goldens that are gentle and also hardy;

but in our long experience of years we have found that the *majority* of Goldenes are below "par" on these two points.—ED.]

THE COMBINED SUMMER AND WINTER SHED A NUISANCE

BY G. C. GREINER

The general tone of Mr. List's article with its illustrations, page 766, Dec. 1, suggests beekeeping after the old-fashioned let-alone plan. For that kind of management, his combination summer and winter sheds, or stands, as Mr. L. calls them, offer some advantages, although I should prefer a finer material, such as oats, wheat, or clover chaff for packing instead of straw. But for the beekeeper who aims to get from his bees "all there is in 'em" by practicing up-to-date methods, such a thing as "summer and winter stand combined" does not exist unless we apply that term to the properly constructed chaff hives as they are listed by our regular bee-supply establishments. And even these are not as readily accessible and easily managed as a single-walled hive.

The only way that will allow the easy, convenient, and time-saving manipulations of a season's campaign, is to have hives spread over the ground, on separate stands, with about two feet space between. Does Mr. List imagine the time and work it takes to remove the sheds and spread the hives in the spring, and then move them together again in the fall for winter packing is lost labor? If he will follow up the season's innumerable manipulations that are unavoidable with modern beekeeping, such as examining in the spring, feeding, equalizing and spreading brood where necessary, artificial increase, and "shook" swarming, dequeening and requeening, adjusting and readjusting of supers, then a little later the extracting work, and, still later, removing the last supers, feeding for winter, and uniting where necessary, and many others that may unexpectedly loom up in the routine of the season, he will see at once that the time saved by having hives conveniently placed will do that little extra work he considers "unnecessary" a dozen times.

To the experienced beekeeper the disadvantages of crowding bees into close quarters, as shown by Mr. L.'s illustrations, are too well known to need any comment. But I would caution beginners and prospective beekeepers never—no, never, if it can be avoided, to plan arrangements of this kind. It is bad enough to fight the ill-tempered individuals of one colony; but when six are

aroused every time one hive is touched, the overdose becomes (to express it mildly) an annoyance. Individually I am practically immune to bee-stings, although I do not enjoy them; but to the great majority of the human family they are an undesirable donation. For the good of all concerned, bees included, all unnecessary aggravation should be avoided.

In the sheltered position behind the raised roof of his stand Mr. L. may not notice the disturbance he causes to all the inmates of the stand whenever he manipulates either one of the six; but I can assure him that the least jar, even the opening of his roof, is felt by every bee in the lot; and under certain conditions it would be sufficient cause to put the whole company on the war-path.

A slight change in the construction of his cases, which would greatly improve their efficiency as a winter protection, and at the same time preserve both cases and hives, may be an acceptable suggestion to Mr. List; or if not to him to some one else. The opening below the hinged front all along the bottom should be closed by letting the front—in fact, all sides and ends—pass down below the floor. This would shut out water, and keep the snow from blowing in. As it is, a heavy drifting rain from the right direction would saturate the whole under part of the cases and their contents full of water, which a sudden freeze would transform into ice. Snow also is liable to drift in around the straw, which straw would, under certain changes of temperature, undergo the same transformation, and surround his hives with an icy inclosure. While these conditions may not be absolutely destructive, they are in no way conducive to the welfare of the bees.

La Salle, N. Y.

CLIMATIC CONDITIONS AND SURROUNDING FACTORS TO BE CONSIDERED

Windbreaks for Winter Protection; Too Much Shelter Allows the Bees to Come Out when the Air is too Cold

BY A. J. HALTER

I note with interest what Mr. Holtermann says on p. 776, Dec. 1, with reference to tight board fences for windbreaks. Probably his location is more adaptable, owing to climatic conditions. I can not argue from his standpoint, and will only relate my own experience, based on conditions in this locality, a distance of 40 miles south of Lake Erie.

When I first began wintering bees with



Double-walled hives containing live bees buried in snow.

windbreaks I bought a lot of binder canvas, nailing it on posts, taking two strips high, thus affording a height of six or seven feet, and placed the hives to the east of the windbreak. This, with a shield of large apple-trees, seemed a good protection except in case of a few end colonies which were a little weak the following spring. The next season a strip to the south side was added, forming an L, and the bees wintered well, for there was scarcely an air current back of this tight windbreak. Only an eastern or southeasterly wind could reach the entrance of the hives (all hives faced in a southerly direction), and I felt that I had some assurance of successful wintering so far as windbreaks were concerned.

The next fall windbreaks were again put in proper position as last stated, every thing progressing favorably, there being plenty of snow, and the bees were in fine order. About the same time I built a ten-foot tight board fence on the north side of an outyard—there being buildings to the east, and woods and elderberry bushes to the west of the apiary.

The bees did not have a flight for some time; and during the latter part of February there was about a foot of snow. The temperature suddenly rose to about 50 degrees by this time, with a bright sunshine mingled with a light breeze which was melting the snow very rapidly. That evening a neighbor who had passed the yard a short time before informed me of what had happened. The next morning I went to investigate; and, to my astonishment, I found thousands upon thousands of bees scattered all over the snow outside of the windbreak

for a radius of 300 or 400 feet in a westerly and southwesterly direction, and one could scarcely step without treading on bees. The ground was still covered with plenty of snow, even around the hives, where great numbers had also fallen in the melting snow and were lost. There were over a hundred colonies in this yard; and when spring came, several colonies were dead. The rest were very weak. There were, perhaps, ten colonies all told that built up strong enough to store

surplus at the beginning of the honey-flow.

After having viewed the situation I proceeded to visit the outyard which was protected by a tight board fence on the north side only, and arrived there about noon. The snow had a very thick crust, caused by a heavy freeze directly after the thaw. What a relief to find only a few bees imbedded in this crust of snow! I began to study the situation, for the bees had not come out for a flight at the outyard except from several scattering colonies from which a few had emerged. This is how I summed up the situation: At the yard where the windbreak was on the west and north, the sun heated up the hives and immediate surroundings, as the air currents were almost entirely shut off by the windbreaks at the stated time, and it became warm enough for bees to fly out in great numbers. But when they came in contact with air currents they became chilled, and dropped on the snow outside of the windbreak, never to return. At the other yard, the air or breeze came in among the hives and did not warm up enough for the bees to venture out.

Since that I have not put up canvas, but just pile up hive stands or boxes about five feet high where light air currents pass through, and have not had any loss by bees flying out. They seem to winter as well as those at the outyard where the ten-foot fence is still retained and where the hives are placed in five or six rows, about twenty in a row facing south.

Last winter the mortality was mostly in hives in the center rows, being about 35 feet south of the high board fence. What explanation can be given? Possibly the

severe north and northwest winds coming in contact with fences and buildings on the east was forced back and scooped down to the surface of the ground only to rise again in accordance with laws of distribution. This was probably only an incident in accordance with directions and velocity of storm; but would it be wise to reconstruct the situation thus, providing a repetition might come from some other direction? This idea of windbreaks seems about as perplexing to me as the swarming question. When all looks well, something is sure to be wrong. If we knew of coming weather conditions it could be solved accordingly; but as most of our storms or cold winds come from the west or northwest, we naturally make provision accordingly; but when an eastern storm comes we simply say, "It won't last long."

My idea of a windbreak is a location where severe and cold winds are elevated to pass over a certain obstacle, which is more natural where hills or valleys are natural landscapes. An apiary located on a side hill with this natural protection would be the ideal; but, unfortunately, only a small number of beekeepers are so located, and these must adopt the artificial to the best of their judgment and surroundings. A light breeze in an apiary located back of a windbreak is, I believe, essential, as it will bring pure air and destroy dampness, and is less apt to lure bees from the hives until conditions are safe for a general flight. My observations along this line lead me to believe that careful study of climatic conditions and surroundings are the main factors in constructing windbreaks, and that success can be obtained only under favorable conditions.

Akron, O., Dec. 10.

[See editorial.—Ed.]

BEES BURIED UNDER A FOOT OF SNOW AND ICE

BY F. J. LILLIE

The photograph shows how I dug my hives out of the snow March 1, after they had been buried under a foot of snow, having a heavy coat of ice for four weeks. I thought the bees would be all dead; but I lost only one colony out of ten. All seemed well supplied with stores.

Corry, Pa., April 1.

EXPERIENCES OF A FOUL-BROOD INSPECTOR

Superstition and Ignorance

BY J. E. CRANE

Continued from page 21, January 1.

The ignorance of the great mass of beekeepers is past comprehension. So far as I can judge not more than one in six in some sections ever reads a bee journal of any kind. Most of them know little and seem to care less. One family on whom I called told me that the reason their bees had done so poorly was because they had sold bees and had taken money for them. No argument on my part could convince them to the contrary. It was of no use to tell them that the season had been unfavorable. No; they had sold bees and had taken money for them, and they must suffer.

Many seem to think that, if they succeed in hiving a swarm, and then place it on a stand in the back yard among the bushes, or over by the hog-pen, or leave it sitting on the ground, their work is done.

Somewhere I tipped up a hive from the bottom-board, and began scraping off what appeared to be a scab from the bottom of the combs so as to get into them to examine them, when the proprietor informed me that I was tearing off what remained of the old bottom-board that had stood or rested on the ground until it was rotten, after which the hive, rotten bottom-board and all, was set on a new board and given a stand.

One man declared to me that the apple worms (tent caterpillars) got into his hives and spoiled combs, "Do you know they were tent caterpillars?" I asked. He said he did, for he could see the cocoons they had left! A friend of mine, an inspector in another State, tells about finding a hive standing on the ground, and weeds growing up through it; also of another where the combs had been cut out and old burlap stuffed in to fill the empty space.

An experienced beekeeper was telling me how one of his neighbors came to him in trouble. His bees had been getting something that made them drunk. He went over to see what was the matter, and found that the hives were standing about two feet above the ground while the day was cool, and all of the bees that missed the entrance fell to the ground, and, being chilled, were unable to rise again, so they crawled aimlessly around to be reported by an ignorant beekeeper as drunk. What a shame! I have said to myself many times, "If bees will live under such conditions, what would they do

with intelligent care?" No domestic animal would live with such treatment as bees receive. It is a great pleasure, after visiting such beekeepers, to meet intelligent apiarists who are readers of bee journals. They know who the inspector is, what he has called for, and are ready to give him any assistance in their power. They don't need an inspector, for they have been doing their own inspection, and can tell to a dot just the condition of their bees, and whether they have any contagious disease or not.

I called on one of this class; and after I had looked into a good many hives he said, "The colonies in that row of hives have Doolittle queens; in that row, Moore queens; and in that row Hand queens," and I envied him the fun of watching the differences in these three strains of Italian bees, for he had enough to give him a pretty good idea of their relative value. The inspector would like to stop to visit a long time with such; but "beesness is beesness," and he must move on.

SOME OBSERVATIONS ON EUROPEAN FOUL BROOD.

European foul brood in an apiary is always an interesting study. If the disease has not made great headway, I have found from one to three colonies very bad, and between a dozen and twenty in the earlier stages of the disease. There seems to be some relation between the very bad and those in which the disease has only begun its deadly work.

I visited a yard the latter part of the summer where I found the disease well advanced and in all stages. In this yard the whole process of ruin could be observed. The first colonies that came down had reached the last stage, and were a mass of worms, filth, and cocoons. Only one out of twenty-four colonies was still healthy, while the rest were in all stages of foul brood.

When the first colonies that come down become weakened, robbing sets in and disease is carried to the other hives. As soon as the bees become too weak to protect themselves against moths the one happy home is soon changed into a mass of ruins, and the beekeeper vainly believes that the moths are at the bottom of his trouble, while they are only the scavengers that have consumed what was left by disease and the robber bees.

QUESTIONS ASKED.

The questions that are asked an inspector are often amusing. For instance, "How long does it take to learn beekeeping?" To this I reply, "I have been at work learning for more than forty years, and

haven't it all learned yet." Or a more frequent question is, "Do bees ever sting you?" "Yes," I tell them, "I suppose I have been stung more than seven or eight times in the past forty years," and likely I may hear their exclamations of surprise that I should continue the business and take such risks.

THE RIGHT WAY TO MANAGE.

It is a great relief to me when I get such a letter as I received last summer from a woman in a neighboring town. She said she was afraid that they had foul brood among their bees, so she had sent a sample to Washington. Later she wrote me that it proved to be genuine European foul brood. I was not surprised, a little later, when I called, to find GLEANINGS on the table. Now, how sensible! She had inspected her bees and had observed something wrong, and had done just the right thing in sending a sample of the brood to the Department of Agriculture at Washington instead of waiting until her own yard was ruined and her neighbors' yards exposed. If all who keep bees were as prompt, the disease would soon be stamped out.

WASTEFUL NEGLIGENCE.

In opening hives I have been surprised at the great amount of drone comb I find near the center where brood-rearing begins in early spring, and where worker comb is to the last degree necessary.

I often find combs lying around on the ground and going to waste that might be saved and made into wax. I have often thought it would be money well spent to send an inspector around among beekeepers to instruct them, even if there were no such thing as disease. I wonder if they would take the lessons to heart, and practice what they were taught.

Middlebury, Vt.

To be continued.

THE TREATMENT OF EMPLOYEES ON A BEE-RANCH

BY SUBSCRIBER

My own experience in California was something after the same style as the experience given on page 350, June 1, so it may interest some of your readers.

The majority of ranchers in this State, including the beekeepers, appear oblivious of the fact that their hired help are of the same flesh and blood as themselves, and that, possibly, may account for the treatment meted out to them by their employers.

I answered an advertisement for help on a bee-ranch, not because I knew any thing about bees, but simply that I was out of employment and needed the money. I was

to receive \$30.00 a month, and room and board. The room was the veranda. I was supplied with a spring cot and blankets.

As to board, breakfast consisted of badly cooked greasy bacon, dry bread with a tough crust, flapjacks cooked in an old frying-pan which was as black as charcoal, inside and out (honey supplied the place of butter and sugar), canned milk liberally watered, and prunes. The latter were put on the table in the same pan in which they had been cooked. Dinner consisted of fried bacon, boiled beans, and a kind of stew composed of macaroni, tomatoes, potatoes, and bacon grease. Bacon and leftovers from dinner were used for supper. I saw fresh meat about half a dozen times in three months, and then it was usually liver. When the crew worked the apiaries away from home, the lunch consisted of canned beans, a cheap grade of sardines, and dry bread.

The cook employed by this outfit was an old man past 80, who had been a miner in the early days. What salary he received I never discovered. I only knew that he never by any chance cleaned out his kitchen, the floor of which bore the grease of ages.

As you may readily imagine, a few days of this kind of thing was usually sufficient for most of the help who came. As an inducement to some of the help to stay, they were offered a bonus of \$5.00 per month if they stayed during the entire season. But this failed to hold most of them.

A young fellow from Chicago, after putting in about four months, was carrying a hive of bees, when he stumbled. The owner happened to see him, and shouted, "If you had dropped that hive I would have knocked your d—d head off." I asked the young man why he stood for that kind of thing, and he replied, "Oh! he wants me to quit so he won't have to give me the extra \$5.00." Is this the kind of treatment to be expected on bee-ranches?

About this time of the year a good many men from the East come to California in answer to advertisements for help. Let me give them some advice. First, if you can get any kind of labor by which you can get enough to live on, stay where you are. I honestly believe from personal observation that there are more able-bodied men working for their board and a small pittance, in the State of California, than in any three other States in the Union.

Second, hired help in most ranches is required for only a few weeks, after which the men must hunt other work. They must carry their own bedding. The board is inferior, and so are the sleeping accommodations.

There is an old story told of a hired man who, on asking the employer where he was to sleep, received the reply, "I own 5000 acres around here, and you can sleep anywhere you like outside the house."

[We are afraid our correspondent is a little hard on the California men as a whole. We have known students who have been treated most royally by their employers in the Golden State.—Ed.]

BEEKEEPING IN THE SOUTHWEST

The Scholl Improved Hive-numbers

BY LOUIS SCHOLL

Continued from page 43.

course, the number can be painted with a brush, but it can not be done as nicely nor as quickly as with the rubber stamps.

They are easily applied to either end of any story at any part of the hive by simply hanging over the edge of the upper story or the rabbit of the hive. Fitting snugly, they do not interfere with the ends of the frames nor with any upper stories or supers piled on, nor with the covers, as those slip right over them. These numbers can be changed quickly to any other part of the same hive or to any other hive.

They are always securely in place, being either locked down by the covers of the hives or the upper stories and supers. Hence they can not be misplaced easily by a strong wind, and are more secure against mischievous depredators who might be apt to remove them or exchange them on the hives, and thus cause considerable trouble.

They are cheap and everlasting, therefore, and I am giving them to beekeepers who desire a good hive-number as the "Scholl improved number-tags." You are welcome to use them if you like them.

New Braunfels, Texas.

CONVERSATIONS WITH DOOLITTLE AT BORODINO, NEW YORK

Continued from page 44.

In addition to what I have already given you, use partly finished sections, which are generally quite numerous during the middle of July; and if you thin the honey to about the consistency of the nectar as it comes in from the field when it is given to the bees you may be quite certain of a profitable outcome. Lacking in any of the points given, any one trying the experiment is likely to conclude that his time and honey can be more profitably used otherwise.

WHY DO BEES DISLIKE BLACK?

Some Interesting Data; Black Objects Stung by Bees because More Visible

BY JOHN H. LOVELL

In GLEANINGS for December 1, 1912, Mr. J. E. Crane says that it is the almost universal opinion that bees dislike black. So far as my experience goes (and I have given considerable attention to the matter during the past few years), this would appear to be undoubtedly the opinion of the majority of American beekeepers. Now, why should bees dislike black? They will gather honey indefinitely from a piece of black paper or from a black dish. A part of my winter cases are painted black; but I have never been able to discover that the bees exhibited any antipathy to them on that account.

On the other hand, let an animal wholly or partially black approach the hives, and the evidence is most convincing that it will receive more stings than if it were entirely white. Of a flock of twelve black chickens running in the bee-yard, seven black ones were stung to death while the five light ones escaped (GLEANINGS, March 1, 1911, J. Ridley). A dog with a black rump is badly stung on this part, while the white portion of his body is comparatively free from attack (GLEANINGS, March 1, 1911, H. C. Driver). As mentioned by Mr. Crane, a white horse may be driven near the apiary with less danger of its being stung than a black one. Another correspondent has told how a white dog ran among the hives without attracting much attention, while at the same time a black dog was furiously assailed by the bees.

Many beekeepers report a similar experience from wearing black clothing. A white coat does not excite the bees so much as a black one (GLEANINGS, March 1, 1912). Dr. Miller gets more stings when he wears a dark suit than when he wears a light one (GLEANINGS, Dec. 1, 1906). Mr. Huber H. Root had a black felt hat "literally decorated with stings." On changing to a gray hat he did not get a single sting. The black head of a hat-pin is repeatedly attacked by bees. A pair of black stockings substituted for bee-gloves is literally "peppered." The editor of GLEANINGS has related that, while examining one of the apiaries of Mr. E. D. Townsend, he wore a dark suit and received more stings than Mr. Townsend, who was dressed in a white one. Elsewhere he has expressed the wish to have the question discussed further.

All beekeepers, however, do not agree

that it is the black color which excites the anger of the bees. One observer suggests that it is a question of education. Editor Root received more stings than Mr. Townsend because he was a stranger. The bees would have treated him more kindly if he had given them a little time to get "educated." However this may be in the case of beekeepers, it does not help us any with the black and white dogs, or the black and white chickens. Here both were equally strangers. Another beekeeper thinks that it is not so much the darkness as the roughness or hairiness which annoys the bees. To this Dr. Miller replies that he has seen at least a dozen bees viciously jabbing at the smooth glass head of a black hat-pin, following it for half a day.

The *Irish Bee Journal*, according to Dr. Miller, hinted that had he put on a clean shirt he would have had fewer stings; that is, it was the odor and not the color which offended the bees. As would be expected, the doctor replied that the shirt was newly put on, and was void of offense in the particular mentioned. Dr. Miller's photograph, indeed, effectually refutes such an imputation. The above-mentioned editor seems rather to scout the accepted opinion, and says that he has worn a black felt hat and didn't get any stings. St. Patrick, so it is authoritatively reported, formerly drove all the snakes in Ireland into the sea. Possibly the good saint, while he was about it, blunted the stings of their bees a little. However it may be in green Erin, bees in America certainly sting black objects, if endowed with life, more freely than they do white.

Let us consider for a few moments the psychology of colors in an endeavor to ascertain if one color ever irritates more than another. A bright-red garment, as many know from experience, will greatly enrage the turkey-gobbler or a bull. Boys sometimes use pieces of red cloth as a lure to catch frogs. Physicians state that children wearing bright-red clothing and people living in bright red-rooms are often very nervous and irritable. These symptoms disappear when another color is substituted. There are persons who can not bear to look at red. The case of an officer is cited who was made giddy by red.

There is a word for red in every language, but not always one for blue. Savages use red pigments in painting their bodies more than any other hue. Red is claimed to exert more motor power on the eye than blue. Soldiers are no longer dressed in scarlet. Persons suffering from melancholia are benefited by looking at red; but insane patients may be rendered uncontrollable. A

man will become intoxicated more quickly in a room painted red than in one which is blue.

Smallpox patients escape pitting if they are placed in rooms with red glass. Under the advocacy of Dr. Finsen, red-light treatment has been widely extended. There can not be any doubt that red waves of light tend to excite the nervous system. The ether waves which give rise to the sensation of red are longer than those of any other color. Accordingly we should expect that the color with the shortest waves, as violet, would produce the opposite effect, or be very depressing. This is the fact; and those who live in dark-blue or violet-colored rooms are apt to be low-spirited. It is said that state prisoners in Russia are sometimes confined in rooms with the walls painted a deep violet, with the result that the mind in time becomes enfeebled and helpless. Red in moderation is a warm stimulating color; but in excess it becomes an irritant.

If black were a color we should conclude that the waves of light from it irritated the bees. But black is not a color. An object is black because all the rays of light are absorbed; it is white because they are all reflected. Now, we do not see how black can irritate the bees when it does not, like red, give off any rays of light to affect them. The physical cause, waves of ether, is absent. So far, then, as finding out why bees sting a black animal more than they do a white one, we do not seem to be much better off than when we started; but we have narrowed the problem.

Are, then, bees angered by black?

We think not.

Is there no other explanation of their apparent dislike for black?

Some time ago, if I mistake not, it was suggested in GLEANINGS that perhaps the true explanation is that bees see a black object more quickly than they do a white one. This, in my opinion, is correct. Undoubtedly in the glaring white light of a day in midsummer a black object is more rapidly seen than one which is white.

In the polar regions all forms of animal life, whether mammals or birds, in the winter season become white like the snow. In contrast with the vast expanse of white landscape a black object would be very conspicuous. A black coat is equivalent to a death sentence. A bee hastening out from the darkness of the hive would more readily see a black object than one which, like white, is less visible in the intense light. Like white, a mirror reflects the larger part of the rays of light; and if one could be constructed which would reflect them all it

would be invisible. Failure to detect the presence of a mirror has, indeed, been the cause of many mistakes.

Again, a black surface in bright sunshine is several degrees warmer than a white surface. This additional heat may also exert some influence in attracting the attention of the bees, though this is doubtful. As bees pass so large a portion of their time in the darkness of the hive, it would certainly seem improbable that blackness *per se* would annoy them.

The disposition of the bees and the way in which they are handled are likewise factors which must be considered. Nor in emphasizing the supposed dislike of bees to black must it be forgotten that they very readily sting white objects. The case was mentioned of a beekeeper who used a pair of black stockings instead of gloves, with the result that they were stung very badly. I always wear white gloves, but at times the bees attack them very fiercely and in great numbers. On the whole, then, the supposition that bees see a black object more readily than they do a white one seems to afford a satisfactory explanation of why at times they sting the former more freely than they do the latter.

It follows that one of the principles of apiculture is: Let every beekeeper dress in white.

Waldoboro, Maine.

CARNIOLANS AHEAD OF ITALIANS IN MANY RESPECTS

Their Tendency to Swarm Excessively Overcome Easily

BY E. F. ATWATER

In this locality we have never had black bees unless rarely from a mismated queen sent here by some breeder in the East or South. With this condition, and for many years with nothing but Italian bees, we are prepared to say that the idea so often advanced that Italians will, when left to themselves, degenerate to blacks, or approximate that type, is a myth, pure and simple. The existence of this long-time myth, false as it is, has been dependent on the fact that in most localities the bees, of more or less black blood, in woods or rocks or box-hive apiary, will rear a vast number of drones compared to the few that are usually allowed in an up-to-date apiary.

Excellent as are the Italian bees, they are not superior in all respects for all localities. For several years we have been slowly and rather cautiously adding a little Carniolan stock. We know that the Carniolans (not necessarily pure Carniolans), rightly man-

aged, will average to bring a larger force to any flow than any strain of Italians.

Unlike Mr. Holtermann, p. 10, Jan. 1, 1912, we have had excellent success with these bees when using the eight-frame hive; but we add one or two stories to accommodate them before the flow, or else we draw from the Carniolans to build up the Italians. However, we are working more toward a large hive, using ten-frame size largely, and have no doubt that in many ways the twelve-frame may be better.

BANATS A FAILURE FOR COMB-HONEY PRODUCTION.

Three years ago the enthusiasm of a near-by beekeeper for the Banats led the writer to try 130 queens of this stock, as they were very highly recommended by several. They were one of the finest and most uniform lots that I have ever seen, and they arrived in splendid condition after their long journey. They were nearly all successfully introduced. This was one of the most disastrous mistakes in my experience. The much-praised non-swarmer comb-honey Banats will build up to great strength in the spring (much like the Carniolans), swarm as much as any bees, and when a good flow comes they crowd the brood-nests (if comb honey is produced) so that they are scarcely numerous enough to work one super when the second flow arrives. They winter well, but their product will run at least one super per colony less than any bees that I have ever owned. Only one Banat colony of all that I have owned has made 100 sections of comb honey, while many Italians, in the same season, far exceed this amount. This inferiority is not so apparent if extracted honey is the product; but naturally the Banats are being weeded out of our apiaries, while the Carniolans are being used in increasing numbers.

We usually buy and breed some of the best Italians every year, having, one season, 30 Italians from a famous breeder that gave us at least one dollar per colony more than the average from the remainder of the yard.

Since but few breeders can supply purely mated Carniolan queens, we sometimes buy many of them mated to Italian drones, as that strain is better than a lot of uncertain black and hybrid bees. Then we have an imported breeder to use when we have time to rear some of our own queens.

We have occasionally had a few Carniolan colonies that would fill two supers before any Italian colony would fill one, and their white cappings and hardness are valued while their prolificness is a decided help in handling disease. If it is true that

the Italians are so superior to the Carniolans in handling disease, how is it that the late Capt. J. E. Hetherington, with his thousands of colonies, was, before his death, introducing hundreds of Carniolan queens into both the Virginia and New York apiaries, in the latter yards finding them a great aid in combating disease?

If they are such great swarmers, how is it that Capt. Hetherington could handle them to advantage in his many yards?

If, as claimed for them, they are likely to convert their surplus into brood, how is it that our helpers find our Taylor yard, mostly Italian blood, very light for winter, while in the Highland yard, three miles south, with Carniolan stock, the hives are packed with stores?

If they are such great swarmers, how is it that a row of 20 of them in the home yard, with but little care, made over 100 lbs. per colony, and cast only two swarms, while the entire yard averaged but 63 lbs., there being but little Carniolan blood in the other colonies?

The beekeeper who can not adapt his manipulations to the racial characteristics of the Carniolans had better continue with the Italians. But for those who will so adapt their methods, the Carniolan race offers some marked advantages in some localities.

Meridian, Ida.

Preventing Granulation in Comb Honey

In looking over a copy of GLEANINGS for May 15, 1909, page 305, I notice an article on candied comb honey, by Frank Rauchfuss. In the footnote to the article you speak of experiments you were at that time conducting in trying to liquefy candied comb honey without spoiling the sections in any way. You say the chief difficulty is in keeping a steady temperature. This subject has interested me for some time past. If you will give me any information in regard to the experiment I shall be greatly obliged.

Forest Park, Ill., Dec. 16. J. W. ALLERS.

[We finally abandoned all attempts to keep comb honey liquid by very high heat. We do, however, store our comb honey in a room, the temperature of which rarely goes below eighty degrees Fahrenheit, and we aim not to let it go above ninety. A rapidly changing temperature from cold to hot, and *vice versa*, is conducive to granulation. We have actually reduced granulation by keeping the honey around 103 degrees Fahrenheit; but the expense of the undertaking is far greater than the advantages warrant. Besides this, there is very great danger of the honey melting down suddenly so that large quantities are lost outright. Some combs will stand a higher temperature without sagging down than others, and some honey requires a higher temperature to be reduced, so that, take it all in all, we have come to the conclusion that the best way is to sell comb honey *before* it granulates, and not be obliged to resort to expensive experiments after granulation has actually begun.

By a little effort granulated comb honey can be sold. There is nothing wrong with it so far as taste is concerned, although if sold indiscriminately to those who do not know what it is, it is likely to cause suspicion of adulteration, the average person thinking that it has "gone back to sugar."—ED.]

Heads of Grain from Different Fields

Making Increase and Honey at the Same Time; Feeding Candied Honey as a Winter Food; Carniolans Excessive Swarmers

I have 20 stands of bees (Italians), and want to build up to at least 100 the coming season, at the same time getting what honey I can. I have planned to set aside a few hives to work for increase, dividing as soon as I safely can in the spring, and by so doing leave half or more of my bees to harvest undisturbed what honey they can.

From the time the first willows start in April until the last of the sweet clover and goldenrod is killed by the frost in October we have no time when pollen and nectar can not be found if the bees can fly.

I have some 175 lbs. of thick honey, candied, that I am holding for stimulative feeding, but have had no experience; in fact, the past is my first season's work with bees. I was fairly successful in building up by separating into two-frame nuclei, and either providing a queen-cell or eggs and larvae. I am using Danzenbaker ten-frame hives, but shall change to the double-walled of the same dimensions.

Can you give me any hints that will steer me clear of the pitfalls I am apt, as an amateur, to fall into?

Are you still of the same opinion regarding the Carniolans, as when the 1908 edition of the A B C book was published?

I don't enjoy the "glue" left on the frames in the fall, nor do I want to fight swarming all of the time. The last is all that keeps me from trying the Carniolans, and doing away with the Italians.

Ironside, Ore., Dec. 15. A. W. ANTHONY.

[Your plan of dividing your colonies by running one portion for honey and the other for increase is correct. It is usually a mistake to try to secure increase and honey both from the same set of colonies, although there are some seasons when a heavy flow of honey will enable the apiarist to secure both increase and honey.]

For the best methods of increase we would refer you to the subject of "Increase" in our A B C and X Y Z of Bee Culture. The Alexander plan has much to commend it.

Your locality is exceptionally favorable, for it is seldom indeed that bees will be able to secure something, either pollen or honey, whenever they can fly.

Your candied honey can be given to the bees direct, providing it is not dry and hard. In fact, feed in that form is an excellent thing to give to bees either in the North or South. In your climate there is danger that your candied honey will "run" and daub the bees. We would advise putting it in wooden butter-dishes or on paper pie-plates, so that in case it becomes mushy the receptacle will hold it until the bees can take care of it.

In a general way we are not able to give you hints as to how to avoid pitfalls; but if you are a beginner we would suggest that you read "Spring Management," "Robbing," and "Feeding," in our A B C and X Y Z of Bee Culture.

Our opinion concerning Carniolans has not changed since the 1908 edition of our A B C and X Y Z of Bee Culture was put out; and while the edition of 1913 contains new matter and fuller details as to their undesirable as well as their desirable traits in the line first mentioned, we can not make the emphasis too strong that Carniolans are the most inveterate swarmers of any strains of bees we have ever tried. Last year our sixty or seventy colonies of Carniolans at our waterworks yard gave us more trouble in the matter of swarming, twice over, than our five other yards of Italians combined. Ordinary methods of swarm control will not work with Carniolans. For the production of comb honey they would be very undesirable, for the simple reason that the ordinary methods of comb-honey production would

cause them to swarm excessively; but in the hands of some experts Carniolans are excellent for the production of *extracted* honey. We would, however, advise the average beekeeper to try a few of them in a yard by themselves before he invests in them largely. We should much prefer the leather-colored Italians for all purposes, to either Carniolans or Caucasians. The latter are about as bad for swarming as the Carniolans. In these days of out-apiaries it is desirable to have a strain of bees that will swarm as little as possible. The ordinary leather-colored Italians will give as little trouble in this respect as any.

The bee-glue deposited by the Italians is nothing compared with the amount deposited by the Caucasians. The Carniolans are only a little better than good Italians in the amount of bee-glue they use.—Ed.]

Ideas for Up-to-date Honey-house Wanted

I started five years ago with a few stands of bees as a side line to ranching, and they have increased until now they take up practically all my time during the summer.

The expansion of the business makes it necessary to build a new honey-house in which I desire to put all up-to-date equipment for both comb and extracted honey.

I should like to have, through the medium of GLEANINGS, plans for building, location of doors and windows, and placing of equipment for convenience of work and economy of floor space. I can obtain water power from a nearby irrigation ditch to run saw, extractor, and other machinery, and should be pleased to hear from experienced persons as to some manner of installing.

Cedaredge, Colo. GALE H. PATTERSON.

[There have been other inquiries of a similar nature. We should be glad to hear from those who have had experience.—Ed.]

Outdoor Feeding for Supplying Winter Stores

This fall I began looking over my colonies early in October, and found a number of colonies that had not over a pound in the hive.

I took a burlap sack that was woven tight, and made it about the size of a stove-pipe, and about 30 inches long. Then I made some half-and-half syrup, and when it got cool I poured it into this sack and hung it out in a tree about ten rods from the apiary. Then I put a dish under to catch the drip. In this way the weak ones could get their share.

Swartz Creek, Mich. CHARLES BURTON.

[While the bees of weak colonies get some of the syrup when outdoor feeding is practiced, they do not get as much in proportion. For this reason the safest plan is to feed each colony individually, to an extent depending upon the needs of each.—Ed.]

How Many Hives Needed to Provide for Increase?

Last year I started an apiary in June with 15 three-frame nuclei of pure Italians. The bees built up strong by fall without help, and made about 300 pounds of surplus honey. I wintered them in an ideal bee-cellar, under my residence, with no loss. They came out strong last spring. They increased to 36 good strong colonies, and produced for me 2000 lbs. of surplus comb honey in one-pound sections. Last year was a very poor one for honey in this locality, but the season was very good this year.

I put my bees out on summer stands last spring on April 8. I put them in last fall, Dec. 19. This fall I put them in Dec. 8. My hives will weigh from 70 to 90 pounds now. They are all ten-frame dovetailed hives.

From the time I set the bees out last spring until about Nov. 1 we had almost a steady flow of some kind. I was not troubled at all by robbers. I had four swarms about Sept. 1. All made good. How many hives should I purchase next year normally? Lewistown, Ill., Dec. 12. CALVIN BROWN.

[The number of new hives you will need depends largely on your management. If you intend to do all you can to keep down increase you would not need many new hives—perhaps ten would be sufficient. But if you permit natural swarming, or if you follow artificial methods of making increase, you may need as many as thirty or forty.—Ed.]

Mixing of Bees in a House Apiary

Dr. C. C. Miller:—I have built for little chickens a brooder-house 100 ft. long and 16 ft. wide. I wish to use the floor for the little chicks, and a shelf 18 inches above the floor to set the hives on, facing the outside, with an alighting-board running the full length of the building. Some distance above the hives is a door 18 inches wide and the length of the building, to raise up in summer time. Do you think the bees would have any trouble in finding their proper entrances, or would give any trouble inside the building?

I thought this a good plan for protection of hives in all weather, and chicks on floor space below.

I have noticed that some say the building must be painted different colors on the outside.

Lafayette, Ind., Dec. 15. WM. H. ROBINSON.

[As the entrances are well lighted there should be no trouble about the bees finding them. Yet with entrances so close together, and all alike, there will be some mixing. Different colors painted over entrances will do some good, but I suspect that bees pay even more attention to form than to color. Some advise different form as well as different color over entrances, as a circle over one, over others a triangle, square, etc. Still better, have trees, or even posts, to help locate entrances. One or more trees within five feet of the building will help much, even if the trees are small. Instead of having the alighting-board continuous, you had better have a separate one for each hive. There should be no chance for bees to get into the building near entrances from outside, unless the building be so freely open that no bees would be imprisoned.—C. C. MILLER.]

Small Introducing-cage did Not Work Well

I have used a queen-cage with the block on one side, described by A. V. Small, page 762, Dec. 1, but it did not work well for me. The queen would stay in the cage for a week after the candy was eaten, rather than crawl out through a hole $\frac{3}{8}$ inch in diameter and one inch long.

I find that it works better to press the cage into the comb about $\frac{1}{8}$ inch, and place in it five or six bees just hatched from the colony to which I wish to introduce the queen, together with the queen. I tie a wire around the frame to keep it from pulling off. I place the frame at one side of the hive, and after four or five days remove it without using smoke. If the queen is out I remove the cage, replace the frame, and do not disturb it for ten days or more.

A. L. C.

The Carbolic Acid Solution Should Not be too Weak

On page 761, Dec. 1, E. D. Townsend says, "We use a one-to-one-thousand solution of corrosive sublimate or carbolic acid." The corrosive-sublimate solution is of the proper strength, and will work all right, but must not be made or used in a metal vessel. A solution of carbolic acid of 1 to 1000 is not strong enough to be of any use for killing spores. When used in place of a 1-to-1000 solution of cor-

rosive sublimate, a carbolic-acid solution should not be less than 1 to 20, and should always be made by pouring boiling water into a vessel in which the proper quantity of acid has first been placed.

THE COFFEE A SUGAR.

On page 771, regarding "A" sugars, before the introduction of granulated sugar in this section of the country we had what was called "Standard" or "Straight A" sugar. This has been displaced by granulated sugar. We also had "Coffee A" which was of a light-yellow color, and fits the description given by Mr. Miller of the "Coffee A" of to-day, with which I am not familiar. Before the introduction of granulated sugar, many merchants would substitute what were known as "Off A's" for "Standard A" sugar; the "Off A's," as the name implies, were a little off in color, and moister than the "Standard."

Scranton, Pa., Dec. 9. L. F. HIORNS.

How to Recognize Honey-dew

How can I recognize honey-dew when examining for winter stores?

St. Paul, Minn., Dec. 9.

J. PETERS.

[It is rather difficult for a beginner to recognize honey-dew, especially when there is but little of it in proportion to the amount of honey in the comb. In fact, it is often difficult for one who has had experience to be able to say definitely whether there is honey-dew in the combs. A chemical analysis reveals honey-dew, of course, but this is out of the question ordinarily.

By holding the comb up to the light, one can often detect honey-dew by the muddy dark color. Pure honey which is dark in color, unless it is beginning to granulate, is generally clear, though dark; while honey-dew, if there is very much of it at least, has a dirty smoky color.

The taste is different from that of any kind of honey, as it is rank and disagreeable; and if the contents of the comb are nearly all honey-dew, the flavor is often quite bitter.—Ed.]

Cause of Fermentation of Jamaican Honey Late in Season

In Jamaica, honey ferments in the comb as well as in the extracted form; but this happens only to honey gathered after the month of May. In June and July, fruit commences to ripen in great quantities, especially the mangoes, and it is the juices of the fruit which the bees gather, and with which they adulterate the honey, that cause the fermentation.

BEES GATHER POLLEN WHETHER THEY HAVE A QUEEN OR NOT.

The fact that the bees are carrying in pollen is no proof that the colony has a queen. The above reminds me of a youth of about sixteen summers who visited my apiary, and who professed to know a lot about bees. On seeing a bee enter its hive with a load of pollen, he exclaimed, "Oh! I am sure that colony has a queen." "Why are you so sure?" I asked him. Then he began to explain that, if there was no queen in the hive, there would be no young larvae to feed; hence the bees would not gather pollen. Becoming somewhat interested in the lad I asked him to see whether the colony really had a queen. I now discovered that all the youth knew about bees was the difference between a cross colony and a gentle one. He must have read about pollen in some ancient bee-book.

F. A. HOOPER.

Four Paths, Clarendon, Jamaica, B. W. I.

Meeting of New Jersey Beekeepers

We were obliged to change the date of the meeting to Dec. 20, but we had a large and successful meeting, fifty being present. There was a fair show of honey, considering it was the first attempt at

a venture of this kind for this Association. There were four entries of extracted honey, three of comb, and two of old beebooks. Harold Horner, of Philadelphia, did the judging.

For the best display of old books, the award was given to Mr. J. H. M. Cook, of Essex Fells, N. J., who had one of Quinby's first edition as well as an old one by Miner, and a *Beekeepers' Journal*.

For the best honey in $4\frac{1}{4} \times 4\frac{1}{4}$ plain sections, W. B. McNamee secured the reward; and for the best in 4×5 plain sections, E. G. Carr was the winner. There were no beeway sections shown.

New Egypt, N. J., Dec. 21. E. G. CARR, Sec.

Trading a Skunk for a Colony of Bees

In December, 1901, I got my first stand of bees. We were cutting wood, and caught a civet cat (small skunk). On the way home we passed the house of a trapper, and he wanted the civet and tried to buy it. As he had no money I asked him how he would trade a colony of bees for it. He asked me a dollar to boot, so I gave it. I tied them on the back of the buggy and took them home.

The rest of the folks all laughed at me; but I had always wanted bees, and was going to see what I could do with them. I had an old A B C of Bee Culture that my grandfather gave me. I bought two Danzenbaker hives. I let the bees swarm once, and then transferred them. I used no veil nor smoker, and didn't get stung; but I soon learned better in trying to give a wild swarm. It was on the corner of a neighbor's house, and was trying to go into a knot-hole where there were some bees. I got my hive fixed on the ladder, and took a weed to brush them off. I got about 25 stings, but I secured the bees.

I have tried about all of the different sizes of hives; and the best for a beginner in this State is the ten-frame dovetailed. No beginner should use any smaller, and I think all manufacturers should have a notice to that effect in their catalog. I have the Danzenbaker; and while it is excellent for the purpose of getting the honey in the super, I always have to feed or put on a super of shallow frames for winter. I always get my biggest colonies and the most honey from the ten-frame hives.

I think one of the most serious mistakes that most beginners make is in not having a good strain of bees. I always get from 30 to 50 lbs. more honey from my pure Italian bees than from the common bees. The best queen that I ever had lived three years, and her colony always ran 100 lbs. ahead of the rest. They swarmed once in that time. I have always found it easy to keep down swarming.

There are few people who will make good in the bee business, as most of them do not understand bees, and will wonder why they don't do better.

I gained some valuable information in helping to move an apiary of 40 or 50 colonies, all kinds of hives, and in all conditions. Most of them had not been opened for years. Part of them had combs and honey on the outside. Some were rotted out. It took four of us the greater part of a day and all night to get them nailed up.

Blaine, Kan., Dec. 11. W. V. PITTENGER.

Mating of Queens

One thing does not seem clear to me in regard to queen-mating and queens clipped to prevent swarming. You say they mate only on the wing. Well, what is a queen worth with one wing off? They come out and flutter around on the ground alone.

In the Jan. 1st issue for 1912 some one wanted to enlighten beginners by asking questions and answering them himself. In his description he makes

out that the worker bee is only a stunted female. I didn't suppose the Creator made any stunts.

Greenleaf, Idaho, Dec. 19. B. H. VANTRESS.

[Queens very rarely meet a drone more than once, and this mating takes place within a week or ten days after the queen has hatched from the cell. If a beekeeper should clip a virgin queen, that queen would, of course, become a drone-layer. The idea is to clip the queen *after* she begins laying worker eggs, and then she will continue to lay fertile eggs, even though she never meets a drone, again, for from two to three, four, and sometimes five years more. There are records of clipped queens that have been profitable for six years.

It is true that the worker bees are undeveloped females, really stunted in their growth by coarser food given in the larval stage and the smaller cells. This is proven by the fact that the workers have every female organ, although in rudimentary form. —Ed.]

Hive-tool Made of Old Sheep-shears

Mr. Crane's trouble with hive-tools, page 763, Dec. 1, makes me think it would be a good thing for the inspector to carry a good hive-tool. I used to use a screw-driver, and thought it was all right; but I should like to give a description of an article that will make a better hive-tool than a screw-driver, and it may be found on almost every farm.

Take an old sheepshears. Cut it into two equal parts; bend the flat part of the handle so it will form a ring. Wrap the handle with sheep-twine; break off the point so it will be about $\frac{3}{4}$ inch wide. One side of the blade is oval. It should be ground flat so it will not spoil the hive. Then you have a fine tool.

Sycamore, Ohio, Jan. 1.

C. A. HALE.

Bee-stings Had no Effect

The enclosed letter from Geo. Shiber will interest the readers of GLEANINGS. I have not changed my mind on this subject. There is but one rheumatism, the inflammatory type, and this is a germ disease. Bee-sting poison has no effect on it.

Buck Grove, Ia.

A. F. BONNEY.

[The following is the letter referred to.—Ed.]

My boy, fifteen years old, is just recovering from a bad attack of inflammatory rheumatism. His joints were swollen badly. The truth is, he has been stung to "beat the band" all summer, and he helped all the time while we were extracting 8000 lbs. of honey. The stings did not stop the rheumatism.

Randolph, N. Y.

GEO. SHIBER.

Another Report Favoring Silverhull Buckwheat

The hot dry spell caused a short clover-honey flow last summer; and since the Japanese buckwheat has been grown here the honey from buckwheat has been very light in color. If we go to a field of silverhull buckwheat in full bloom in the morning, it will be alive with bees; but in a field of the Japanese there will be but a few bees at work. The Japanese yields more grain by far, and that is the reason that it is grown so largely.

Bartonsville, Pa., Dec. 22.

ELWOOD BOND.

Limiting Time for Inspection to a Short Period

It has been proposed in Vermont that the time for foul-brood inspection be limited to a very short season, and the bill will be introduced at this session. As no other State has done this it might be well to have the opinion of some practical beekeepers. The member from this section desires advice from GLEANINGS readers.

Swanton, Vt., Dec. 17.

MRS. C. A. SIBLEY.

Our Homes

A. I. ROOT

What hath God wrought?—NUMBERS 23:23.

Lord, thou hast heard the desire of the humble; thou wilt prepare their heart; thou wilt cause thine ear to hear.—PS. 10:17.

[To the following fragmentary account of a trying experience with a new "talking" machine, an explanation is necessary. The dictaphone is a machine somewhat on the order of a common phonograph, which enables one to dictate letters on a wax cylinder which, later on, in another machine, gives a faithful reproduction of the record to an operator who writes it on a typewriter. In order to save A. I. Root's time and strength while he is in Florida, one of these mechanical stenographers was sent to him, the idea being that he could send the cylinders back to Medina to be typewritten. He did not realize how fragile the waxen records were, however, and so he did not pack as carefully as he should have done the first six that he sent. The result is that four of them were broken to "smithereens" in transit. Numbers two and three were intact, and "Our Homes" for this issue is the part of the story they tell.]

Since the first cylinder was broken, as well as numbers four, five, and six, we have no idea what text he selected; but in view of the fact that, in a note accompanying the cylinders, he was very enthusiastic over what he regarded as one of the new wonders of the age, we have an idea that he would like the ones which head this page. However, if he could have known that two-thirds of his work was to be lost outright because of broken cylinders we fancy that he might have added to it the third verse of the sixth Psalm.

There was some adjusting needed; and, as will be seen, the account starts right in the midst of the trouble he was having.—H. H. ROOT.]

As a great part of my life was spent in the watch-making and jewelry business I have been in the habit of handling delicate pieces of machinery and small tools. Very few necessities for this work, however, were to be found in our Florida home; and another thing, not only has my hearing failed more or less, but my eyesight also. Then the fingers of my right hand that has served me so skillfully for years past were also getting more clumsy and unwieldy than they were forty years ago. Notwithstanding, in a little time I succeeded in getting the machine apart and in managing the electrical attachment so that I got along fairly well. Very soon the carriage which travels over the cylinder refused to move. In order to remedy this I had to pull the machine apart still further, and I puzzled several days over the problem of finding a screw or something else that would let it come apart. Finally I told Mrs. Root that I could neither eat nor sleep until I found out what the trouble was with the dictaphone; and in order to get at this trouble it must be pulled to pieces.

I was still puzzling over it until bedtime when Mrs. Root came into the room and suggested it was time to kneel down, and

asked if I wanted to stop just then. As I was getting to be more or less vexed and impatient because I wasn't making any progress, my first impulse was to say that I hadn't time just then. On further reflection, however, it occurred to me that it was just the time of all times that I needed to kneel down and ask the dear Savior not only to give me patience but skill and understanding in the work that puzzled me so much. So we knelt together, and I prayed over just this one thing and nothing else. (By the way, friends, let me stop right here to remark that, though it is right and proper to pray for our nation or country or neighbors or relatives and many other things, when in trouble I have found relief by making just one petition, and nothing else, and ending it up with my little prayer, "Lord, help.") As we arose from our knees the dear wife, as a matter of course, asked if she could help in any way. I told her that there was a pair of eye-glasses for very close vision that I had used in testing eggs, but they had been lost some time. If I had those glasses I thought I might be able to see in the machine by the aid of the electric light, and find how it might be taken apart. In a little while she produced the needed eye-glasses from an old desk, and almost the first thing when I arose from my knees I discovered, with the aid of these glasses and the strong electric light, a little bit of screw, smaller than a pin-head, away down in the depths of the machinery. I said to myself, "Surely it can not be possible that this little screw releases the machinery so it will come apart." Now, I had no small screwdriver, such as watchmakers use, with which to remove the screw, nor had I any tweezers to pick it up when released—or at least I thought at first that I had none. I wondered if this little screw would happen to be loose enough so that I could turn it out with the point of my knife. It was loose, and in a little time I had it out so that I could get it if I had the proper tool. Then I thought of a pair of tweezers that we used for some time a year ago or more for pulling out stick-fleas. (I am glad to tell you that not a stick-tight flea has shown itself this winter so far, either on ourselves or in any of the poultry-yards. They have been vanquished completely by our heroic treatment, which seems the proper means to rid ourselves of this insect pest.) With the aid of these tweezers I soon had the little screw safely deposited

on the table of my secretary. And, sure enough, this permitted a part of the whole shaft to come off. Then was revealed a larger screw that could be turned out, letting the whole thing come to pieces. My prayer was answered. I very soon found the trouble with the machine, and the reason why it would not move the cylinder. There was a little screw that was not turned up tight enough.

Let me pause a little right here. In this day and age of wonderful progress, every one who is at all desirous of being up with the times must have more or less to do with this new and complicated machinery; and whether it be the automobile, the mowing-machine, reaper, or even the up-to-date dictaphone, it behooves us all to know if possible in regard to these wonderful labor-saving implements; and it behooves us also to be able to undertake to remedy minor difficulties. Now, after many years of experience let me give you a few suggestions before you try to take any complicated machine to pieces, whether it be an automobile, mower, or reaper. Be sure that you have all the available tools gathered together that you will need. Then get a clean piece of paper or newspaper, if nothing else is handy, and lay your tools on this paper; and when you commence taking the machine apart, lay the different parts, as you take them off, down on the paper where they can not be lost, misplaced, nor dropped in the weeds. When you are at work with agricultural implements out in the field this is especially advisable. Some farmers have a fashion of having the handles of their tools painted red so that, if they are laid on the ground or in the grass, they are more readily discernible because the bright red quickly catches the eye, and I have found this to be an excellent suggestion. But, no matter how much you are hurried, do not under any circumstances get into the fashion of dropping nuts or bolts down in the grass, weeds, dirt, or rubbish that may be around where you happen to be making repairs. I have seen quite expensive delays caused by this piece of carelessness.

Not long ago a skillful mechanic was called upon to repair a reaper, and he was obliged to go out by the roadside in the grass and dirt. He did his work in a workmanlike manner, and the owner of the machine started off with it; but after he had been gone some time we found in the grass and weeds several important washers which had been laid down and carelessly forgotten. It often happens that a good mechanic may do more harm than he does good; but it is seldom that you find a man or a firm

who is willing to pay for such loss by stupid, careless, or heedless workmen.

Let us now go back to the dictaphone. A washer slipped out of my clumsy and tired fingers, and it went jingling down on the floor under my secretary. It was already after my bedtime, and I was nervous and fidgety. But while I was hunting on hands and knees, Mrs. Root called and wanted to know what progress I was making. I had to tell her of the loss of the washer. She got up immediately and came and helped me. We looked all around the secretary, moved the rugs, shook them out, and went as far from the table as we thought the little washer could possibly have rolled, but without success. I was tired and worried, and almost ready to feel vexed and impatient, and finally that little short prayer of mine rang out, "Lord, help." In an instant Mrs. Root came up before me with her face shining, and held up the little washer that had made so much trouble. It was put back in place, and the machine was apparently all right. Now all that we needed to wait for was the mouth-piece and rubber tube. The next day, it was not until evening that I got time to test the machine once more. Almost with trembling hands I put every thing in the proper position and waited anxiously to hear it talk back. But again I was doomed to disappointment. There was no word, no sound. I talked louder, but with no avail. Mrs. Root was over at the neighbors, and I knelt down again and asked the dear Savior to instruct me once more and help me out of my trouble. Then I got up and tried it once more, and shouted "Hello!" until I feared I might disturb the neighbors. In response to this my heart was rejoiced by a faint "Hello." Then Satan or somebody else tempted me to think that I was too deaf to use a dictaphone any way. What did it mean? If the dear Savior had helped me the night before, was it possible that he should disappoint me in this way when I had gotten so far along? Then I remembered the blind man who was healed, and replied to his friends that he saw men walking about as trees. He applied to the Savior again and again. The Master touched his still imperfect eyelids, and then he went his way rejoicing, because he could see plainly his friends and neighbors and beautiful trees. I knelt down once more and said, "Lord, I believe. Help thou my unbelief." I then remembered that other text about the friends—how the Savior gently remonstrated with his followers because they could not understand or comprehend after the repeated miracles they had wit-

nessed. They were still lacking in faith. Was my faith lacking? With renewed hope I started to investigate the machine once more. I got Huber's letter of instructions, and finally came to the conclusion that every thing was all right except that I did not have the speaking-tube, which had not yet come.

Whosoever therefore shall be ashamed of me and of my words in this adulterous and sinful generation, of him also shall the Son of man be ashamed when he cometh in the glory of his Father with the holy angels.—MARK 8:38.

Let yo'r light so shine before men that they may see your good works, and glorify your Father which is in heaven.—MATT. 5:16.

He that goeth forth and weepeth, bearing precious seed, shall doubtless come again with rejoicing, bringing his sheaves with him.—PSALM 126:6.

SOMETHING GOOD FROM A LOCOMOTIVE FIREMAN.

I am much pleased with your paper, and only wish that I could afford it for a year; but will take advantage of your six-months' offer, and may be by that time I can renew for a year. I do like the way you write under the heading of Our Homes. If Christian men and women would use their influence more in their every-day life, humanity would be greatly helped. Many Christians are like the young man who joined the church and then got a job out west in a lumber-camp. Before leaving home some of the elders in his church told him that he would be thrown among bad and rough men while away, but that, if he would trust in God, he would have no trouble. He went away, and in about a year he came home. His pastor asked him how he got on out west. He said he did not have any trouble at all, as they didn't even find out that he was a Christian.

I wonder if our daily associates know that we are Christians? Let us not be ashamed of Christ under any circumstances. Let us not forget the great liquor curse, the white-slave traffic, etc.

I am a locomotive fireman, and live in the city. I have eleven lots, 40x120. On one we have our small five-room home. In the back yard we have peach, apple, pear, and plum trees, all bearing. My wife looks after the flowers and three colonies of bees and also the chickens. The bees are a cross between the black and Italian. This year we got over 300 lbs. of fine honey. I do not know much about bees, but am learning something more each year about them.

St. Joseph, Mo., Oct. 25.

X. T. CRAGUN.

May the Lord be praised, dear friend, that we have at least one locomotive fireman who is not only a Christian but one who is not afraid or ashamed to show his colors; I suppose, therefore, that your boss engineer never uses a bad word toward you, and certainly you never use any bad words in his presence (nor out of it either). I once rode for an hour or two in a caboose where scripture texts were tacked up on the walls. I found the freight conductor was a professing Christian, and asked him about swearing on his train. He said, "Mr. Root, I never swear at my men, and they never swear at anybody nor at any

thing—at least not in my presence or hearing." That was years ago; and I hope and have reason to believe that railroad men, especially the men to whom I refer, while at work loading and unloading freight, are of a higher type than they were a few years ago. These rough helpers in railroad traffic have not only severe hard work, especially when the train is behind time, but they have many provocations, and they certainly need the grace of God in their hearts if anybody does. The Y. M. C. A. has been making a special effort, as you may know, to look after these men. They are giving them clean beds, good and nourishing food, and at a less price than they formerly paid at saloon hotels. May God be praised for what the Y. M. C. A. has done. While we are sending vast sums of money to support and keep at work foreign missionaries, I have wondered sometimes whether we were doing missionary work that *needs* to be done in our own land, and oftentimes in our own homes. When I scrape acquaintance with these men covered with coal dust, and soot all over their overalls and jackets they often seem surprised to be recognized as men and brothers even despite their uncouth environment. When we recognize how many of these men are killed year after year, often through no fault of their own, especially while they are straining every nerve to take care of the traveling public and of the farmers' produce, shall we not improve every opportunity to give them a kind word of encouragement?

This brother has a little home with a back yard where he has a garden, fruit-trees, and some bees. The good wife has a busy time in looking after and caring for things around their home during her husband's absence for so many hours each day. I believe the Interstate Commerce Commission has interposed, requiring that these men work only so many hours a day. Often during an emergency they work over-hours and even during the night time.

In our haste to get around quickly and get our produce to market, getting our needed tools and supplies promptly, etc., let us not forget this army of workers who make it *possible* for us to live and have all the comforts of life during this twentieth century.

Once more, before closing, may we have grace and courage, each and all, who profess to be followers of the Lord Jesus Christ, to let our light shine in a reasonable and sensible way, no matter where we are. Of course no one expects you to go out of your way so much as to boast

that you are a member of the church. The scriptures enjoin us to be diligent in season; and not only that, but even out of season. May God bless the good brother who has by his letter braced us up where many of us need a bracing. I for one need it myself. And his message comes to me just before I am starting to my southern home. A great many times in traveling I feel too tired or worn out to open up conversation, say with the tired neighbors around me on every side; but some of the pleasantest acquaintances I have ever been fortunate enough to make have been opened up while taking a long trip somewhere. In after years I frequently meet these people, and it is one of my happy experiences to recount the incidents of travel of years ago. Away off in California I dropped a letter in the box, having my printed address on the envelope. The postmaster happened to be near and said, smilingly,

"Mr. Root, how does it come that you are sending letters to *yourself*?" Then he told of having passed a part of the night with me on a trip through the mountains years before.

Now, if you will take a little pains to get acquainted with your fellow-travelers there will almost always be a chance to put in a word for the dear Master, and you can do it, too, without being thought cranky or a little off in the upper story. Several times I have been enabled to get a promise from an acquaintance of only a few hours, that, when he got home, he would hunt up the pastor of the nearest church, and at least encourage him by being on hand at church or Sunday-school or both; and what a thrill it gives me when, years after, and I had forgotten all about it, to find from some pastor that my talk was the means of enabling *him* to gather in the "precious sheaves."

Poultry Department

MUSTARD FOR POULTRY.

We clip below from the *Illustrated Poultry Record* (English):

About two years ago six pullets were placed in competition with two other pens of birds numbering six each, and sisters to them. The first pen were fed on ordinary foods, the second on similar foods with an addition of capsicum, and the third pen also on similar foods, but with an addition of one teaspoonful of Colman's mustard. The mustard-fed birds laid during the period of six months commencing in October and ending in March the grand total of 532 eggs against 359 and 399 produced by the plainly dieted and capsicum-fed birds respectively. In this way did Mr. Ralph R. Allen, poultry lecturer to the Herts County Council, prove to the public that mustard-fed birds produce a larger supply of eggs.

Later he proved that the feeding with mustard in no way debilitates the birds. He produced a short brochure entitled "Mustard for Poultry," followed twelve months later by a booklet giving 101 reasons why mustard should be employed during the winter months to increase production. Mr. Allen has now issued a third brochure entitled "Enquire within upon Poultry and Egg Production," containing many valuable hints on practical poultry-keeping. The book is well thought out and well compiled.

From the above it would appear the six pullets were given a teaspoonful of mustard *daily*, for six months, which is a much larger "dose" than we have ever fed. So far I have never seen any unfavorable report from the use of mustard.

WHERE TO GET MUSTARD BRAN.

I notice in *GLEANINGS* for Nov. 15, in the Poultry Department, a suggestion for feeding mustard to poultry. The question is also asked whether some one can not advertise and furnish "poultry mustard" at a considerably smaller price than the ground mustard of commerce. I notice in the *Poultry Fancier* for December, a journal edited by

F. W. Delancy, Sellersville, Pa., an advertisement from Juniata Poultry Plant, Lewiston, Pa., in which a mustard bran is offered for sale. I believe mustard is better for poultry than cayenne or red pepper and many patent poultry powders.

Derry, Pa.

LAWRENCE L. PECK.

KEEPING POULTRY AT ONE-FOURTH CENT PER HEAD PER DAY.

Mr. Arthur Head wishes some details of feed and prices in this case. He would like "to know how it is done." It would be simple enough to give the bookkeeping details of this feeding, but I am now forty miles away from that yard, and have not been near it for two years, and did not carry away such details with me. The place was worked on shares; and as the owner was a pretty tight-fisted individual you may be sure he did not make the cost of feed any lower than it actually was. The accounts were checked monthly by two independent parties. It should be noted, however, that dry-mash or hopper feeding of any kind was tabooed. All fowls were hand-fed; all feed was carefully calculated and measured, and there was absolutely no waste of mash or grain. There was no waste by overfeeding the birds, and there was no waste by food going bad or by the birds scattering mash among the litter, or by supporting rats or other vermin. Any system that allows birds to gorge themselves at all times will soon run up the costs; and this is one reason why hand-feeding can walk all round dry-mash feeding. Animal food was economically bought. A local butcher supplied meat without bones at two cents a pound, and another butcher supplied bones for grinding at sixty cents per hundred pounds. This was rather different from buying meat meal (mostly ground bone) at \$3.00 per hundred pounds. As the meat was always fresh, pure, and sweet it was worth 50 per cent more in actual practice than the old horse meats mostly sold, and this in itself is an immense saving, apart from the actual prices paid. Little or no green food was purchased except oats used for sprouting to feed brooder chicks. The real economy lay in feeding the stock just as much as it needed, and absolutely wasting nothing

in any other way. Grain was bought from the ordinary supply houses at ordinary prices; but it was carefully examined for quality, and bought only from the firm that gave the best value for the money. Fowls were healthy and in good condition, and in the breeding season Leghorns and Minorcas gave eggs 85 to 90 per cent fertile. No grit was ever purchased, as we had a gravel-pit on the place which met all our needs for young and old stock. There were small economies in other directions which totaled to a tidy sum at the end of the year.

In this connection it might be useful to remember that in Britain two cents per week per head is the usual cost allowance for feeding a hen, and grain is generally dearer there than in America, especially corn (maize). But friend Head must be reminded that no method or system of feeding, however good, will of itself keep down cost. The man on the job is the only person who can do that in a poultry-yard. Victory depends not so much on the gun as on the man behind it. He is the key to the situation.

Philadelphia, Pa.

FREDERICK MARTIN.

SHALL WE KILL OFF ALL HAWKS INDISCRIMINATELY BECAUSE SOME OF THEM "KILL CHICKENS"?

Mr. Root:—Inasmuch as you published in your department a column letter devoted to the most unreasonable criticism of Dr. A. E. Fisher and myself, and then followed it with your own endorsement (page 751, 1909), I wish to present to you the evidence, just now published, on which my defense of the hawks is based. I never have defended all species of hawks indiscriminately, and I was surprised that, with your usual spirit of fairness, you should give your endorsement to such an article, especially when the writer's own language showed that his conviction was based on his prejudice rather than on an investigation of the subject. Dr. Fisher stands high as a scientist, and those who are making such vigorous attacks upon him are, without exception, men who have made no investigation of the subject, and thus expose their own ignorance. The average person does not know one hawk from another, and there is prejudice enough against them without a journal with such a wide influence as yours adding to it. I feel that, after giving the weeks of time necessary to carry out this investigation, the evidence gathered ought to carry some weight against a fellow who manifestly knows nothing of birds of prey further than that he has seen a hawk kill chickens.

Let me say that I have read your department with pleasure for years, and enjoyed it too. Whenever I come in contact with beekeepers I hear good words, not only for the magazine as a whole, but for your department especially. I am glad for its influence, and for the fact that you have endeavored to use your influence always for the right.

FRANK C. PELLETT, Inspector.

Office of State Bee Inspector, Atlantic, Ia., Nov. 12.

I hereby apologize to friend Pellett. Where a hawk has "acquired the habit" of killing chickens, no doubt it should be killed; but our best authorities are of late coming to the conclusion that we often find ourselves in a worse fix when we hastily carry the war of extermination too far. Witness the history of sweet clover, etc.

HOW HOT DOES IT GET IN FLORIDA?

I notice in GLEANINGS that D. W. Abbott says that on Oct. 15 it was 95 at 5 P. M., and 89 at 7:30. This may give your readers the impression that we are living very close to Hades. Now, Ten Broeck says in the journal that on that day the minimum

was 72 and maximum 88. Who is right? I should say Ten Broeck. I don't think the thermometer has been higher than 94 all this summer.

Bradentown, Fla., Nov. 11. J. W. BANNEHR.

Our readers will notice that there is a disagreement in the above of 6 degrees. Our neighbor Ten Broeck is a government weather reporter; has standard government instruments, and is probably very nearly correct; but as he is himself just now "under the weather" he may not have noted the warmest record of the day in question. Another thing: At one time we had our thermometer hanging in the woodshed; and as it didn't agree with his we gave him notice, and he directed us to place our instrument on the north wall of our house. This made quite a difference. Friend Abbott is out in woods, or clearing, rather, about two miles from here, and he may not have had a standard instrument.

Now, there is just one more thing to add. People who live here, especially if they have real estate to sell, are very backward, as a rule, in admitting any thing derogatory to their locality, such as "redbugs" and other insect pests, for example.

Many thanks to my good friend Bannehr for calling our attention to the matter.

"STOP SENDING YOUR PAPER."

The following letter explains itself:

Dear Sirs:—Please stop sending your paper. I do not want to be insulted every time I get a copy of it. I am drinking and smoking, and I like it, and do not feel like paying for any thing that is against my pleasure and the liberty of the land.

Big Wells, Texas, Sept. 28.

E. ZIEGAST.

With the great mass of kind words that come like snowflakes from January till December, once in a while we get something like the above. The good brother who writes it evidently comes from foreign shores. We judge so by his name and also because he seems to think the crusade for temperance is a restraint on "personal liberty." We are sorry to part company with him; but judging from past experience we think the time may come when he will feel like saying, if he does not say it right out, "Brother Root, I am convinced now that you were right and I was wrong."

A DOCTOR WHO HAS NO USE FOR ALCOHOL.

I began the practice of medicine in 1866; was taught that alcohol is a stimulant, and used it for several years, but always with disappointment, and quit its use entirely for other means from which I could see stimulating effects which I never saw from alcohol. "Wine is a mocker, and whosoever is deceived thereby is not wise."

Oxford, Col., Aug. 23.

S. W. MORRISON.

Gleanings in Bee Culture

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Editorial

THE MEETING OF FOUL-BROOD INSPECTORS.

The second meeting of the foul-brood inspectors of the various States was held in Cleveland, Dec. 31, in conjunction with the meeting of the American Association for the Advancement of Science and the affiliated societies, for the purpose of forming a permanent organization. Steps were taken to perfect such an organization, the same to be a part of the larger body already mentioned. Full particulars will be given later by the Secretary, Dr. E. F. Phillips.

NO ADULTERATION FOUND IN CONNECTICUT.

It is a significant fact that, according to the report of the Connecticut Agricultural Experiment Station (Part 2 of the Annual Report of 1912), no adulteration was found in twenty-six samples of bottled honey examined. The following is the first paragraph of the summary:

While in a few cases certain tests indicate the presence of a small amount of glucose, and in two instances the percentage of ash exceeds the standard, we do not feel justified in condemning any sample as adulterated or otherwise illegal. There are wide variations in quality, but all the samples appear to be genuine honeys of varying origins.

A FOUL-BROOD INSPECTOR AND A LECTURER.

MR. FRANK C. PELLETT, of Atlantic City, Ia., State Foul-brood Inspector, is also a lecturer of some note. He is employed by two lecture bureaus. Some of his principal themes are as follows: Little Giants; Economy of Nature in the Plan of Eden; Our Backdoor Neighbors; Passing of the Red Man; Bees; Religion of the Indians; Lives of the Four-footed; Short Course in Nature Study. This last consists of a series of lectures that are both popular and interesting. Mr. Pellet is a naturalist as well as a bee-keeper, and Iowa was fortunate in securing a man of that sort for inspector.

WHY HONEY HAD A GREATER BUYING VALUE FORTY YEARS AGO.

ELSEWHERE in this issue two of our correspondents allude to the fact that honey sold for a much higher price years ago, and that it really was higher in price compared to other articles. Mr. Doolittle suggests

that this can hardly be accounted for by over-production, which is probably true, since the demand also has increased enormously. But it occurs to us that granulated sugar, maple syrup, glucose (or the so-called corn syrup), canned vegetables, and fruits have all combined to furnish a variety and very often a substitute for honey. Moreover, transportation facilities have improved so greatly in forty years that fruits of all kinds are much more widely produced and distributed than in the olden days; so that honey, the purest and most healthful sweet, has really been reduced in price by the competition of other foods.

It is also true that no organization of producers has yet done any extensive advertising along the line of popularizing the use of honey.

A. I. ROOT'S FIRST EXPERIENCE IN BRIMSTONING A BOX HIVE; HOW IT NEARLY COST HIM HIS LIFE.

In this issue, A. I. Root, in a reminiscent way, tells how he first began keeping bees; and among other things he writes about a box hive that was to be brimstoned in the dead of winter; how his childish eagerness was such that he went out into the cold air when he was already sick with a cold, came down with pneumonia, and for days hovered between life and death. Had he been taken away, some history would never have been written; there never would have been a Home of the Honeybees, no GLEANINGS IN BEE CULTURE at Medina, and possibly the beekeeping industry might not have been advanced to its present status. The doctors did not save him; but his mother (as the neighbors said) "would not let him die."

NOVICE'S GLEANINGS IN BEE CULTURE.

Our cover picture for this issue is a copy of the first engraving that ever appeared on the cover of GLEANINGS; and, as will be noticed from the inscription underneath, it was "Designed and engraved by Novice" (A. I. Root), and with a saw.

Some idea of the change that has taken place in forty years is gained from the fact

that GLEANINGS was first issued as a quarterly of only eight pages, 6 x 9½. It was immediately changed to a monthly of fifteen pages, the last column of which was reserved for advertisements, there being seven in all.

Among the names of beekeepers seen in this first volume of GLEANINGS we find the following who are known to the beekeepers of to-day: C. C. Miller, G. M. Doolittle, E. Kretschmer, C. P. Dadant.

Is it not a significant fact that all four of these writers have made contributions for this special Old Timers' number after a lapse of forty years? We are proud of the fact that A. I. Root, the founder, while no longer the managing editor, is still, nevertheless, editor-in-chief.

WINTERING DOUBLE-WALLED HIVES IN THE CELLAR.

MOST of our bees we winter out of doors. This was the case unfortunately last winter; but there was one yard of Carniolans, the individual colonies of which were not very strong, as they had been made up of nuclei comparatively late in the season. We had more fears of this yard than of any other that we had. When the severely cold weather came on, we feared that they would not winter, and so we brought them home and put them in the cellar—double-walled hives and all. When we set them out in the spring they were the best and strongest apiary we had; and if we had put our other bees into the cellar we should not have been obliged to buy heavily in the spring; for while our losses outdoors rarely exceed 5 per cent, last winter they went up to over ten times that. Hereafter, when a severely cold winter comes on, we shall put our bees all in the cellar, and set them out early the following spring, or as soon as severely cold weather lets up.

MOVING BEE-YARDS IN THE HEIGHT OF WINTER WHEN SNOW IS ON THE GROUND; SNOW MORE EFFECTIVE THAN SMOKE FOR QUIETING BEES IN COLD WEATHER.

As mentioned in our last issue, we have been moving some of our apiaries, located in exposed regions where the windsweep was too strong for best results in wintering, to our mammoth bee-cellar made of concrete and brick. It has formerly been considered that it was not wise to move bees in midwinter, as the disturbance would cause them to become active, consume their stores, and clog their intestines, with the result that dysentery would set in before spring. Our experience last winter and this leads

us to believe that this is not so. If the weather is cold enough, the bees will not be greatly disturbed. We prefer a temperature anywhere from 10 to 25 degrees above zero. There should be at least fair sleighing in order to get the best results. When possible the time for moving should be selected right after a light dry snowfall, for reasons that will be presently explained.

If the roads are uneven, and show bare spots, a common old-fashioned sled with long runners is better than a pair of bobs. Whichever is used should have a large platform such as a hayrack, on which the hives may be loaded. The sled is to be pushed clear out into the middle of the apiary, and the team detached and blanketed. The hives are then loaded one by one. As many as sixty or seventy colonies can be carried on a sled. As it is low it is easy to load the bees. The entrances should be so arranged that the apiarist who accompanies the driver can easily get at them. The bottom-boards should be most securely fastened if they are of the loose type. Sometimes the sled will slip sideways, causing a sliding jolt that may dislodge one or more hives from the bottom unless they are well fastened. If they are piled up two tiers high they should be securely roped to the platform and hayrack.

A little way back we stated that the time set for moving should be right after a light snow. The purpose of this is to provide an easy and effective means for closing the entrances of the hives. A wet or soggy snow is too much of a good thing. If it is frozen hard, and breaks up into lumps, it does not make a good entrance-closer; but if it is light and fluffy, it can be picked by handfuls and thrown over the entrances of the hives just before loading. When all are on, the entrances should be examined again, and more snow used if any bees seem to be getting out. A pail or two of light snow should then be put on the sled, to be used in case of emergencies. In cold weather it is far more effective than smoke, and makes an excellent entrance-closer. The bees within can not cluster over the entrance—indeed, they fight shy of it, retreating back into the combs. If any colony should become very much excited by reason of a closed entrance, the heat will melt the snow automatically and thus give ventilation. But in the dead of winter there will be little or no trouble of this kind.

On arrival at the bee-cellar the sled is driven as near as possible to the cellarway. The bees are then taken up, hive by hive, and placed in their permanent location in the cellar. There is no need of removing

the snow over the entrances; for if the cellar is of the right temperature it will melt in a short time, or about the time the bees quiet down.

We find that a light snow is the most effective entrance-closer that we have ever used, and *the only thing fit to use during cold weather in winter*. The heat from the fire-cup of the smoker warms up the bees, stirring them up a good deal more than if smoke were not used. When the bees boil out at the entrance a few handfuls of light snow dropped gently over them drives them back. It is interesting to see them skedaddle back into the hive; for the snow has a tendency to cool them off. Whenever bees become cold they immediately seek the warmth of the cluster.

Last winter we moved an apiary during zero weather from what we then called our Nettleton yard, and placed them in the cellar. We never had bees winter nicer than they did, and in the spring they were the best and strongest lot of bees we had, notwithstanding that in the fall they were the weakest lot of bees—so weak that we felt that they must be put indoors.

THE HUMBLE-BEE: ITS LIFE HISTORY, AND HOW TO DOMESTICATE IT; BY F. W. L. SLADEN; ILLUSTRATED WITH PHOTOGRAPHS AND DRAWINGS BY THE AUTHOR, AND FIVE COLORED PLATES PHOTOGRAPHED DIRECT FROM NATURE.

This is one of the most interesting and beautiful books that have been put out for a decade. The author has obtained his information direct from nature. He explains how he has been able to decoy queen bumble-bees to start nesting under his care, and also how he has been able to get the colonies to work under glass in a specially constructed house where all the details of their behavior can be watched. In many ways the habits of bumble-bees seem to be intermediate between those of the solitary bees and of the honey-bee; but there are differences, and for their own particular purpose they have reached a high stage of perfection. The queen bumble-bee is highly "intelligent," and cares for her young as devotedly as a bird or a mammal. As the result of twenty years' intimate acquaintance with the bumble-bees, and with the aid of the decoying devices and special hives, the writer has been able in this work to present for the first time a great many new facts concerning the bumble-bee's habits. It was through the study of the bumble-bee that he was led to discover the true function of the auricle as an instrument for packing the

pollen into the corbicula box in the honey-bee and the bumble-bee. He shows, too, that the bumble-bee collects its wax from the abdomen or the bristles of the brush on the inner side of the metatarsus, or planta, of the hind legs. Casteel has since shown that the honey-bee also uses these bristles for the removal of wax, but only the row at the distal end of the metatarsus. (See *The Manipulation of the Wax Scales of the Honey-bee*, Circular No. 161, U. S. Dept. of Agriculture, Bureau of Entomology.)

The book discloses a new interest for country rambles, and is being warmly welcomed by the advocates of nature study. There is explained in full and clear detail how the nests of bumble-bees may be found and taken and set up again in the garden, and also how to make a collection of specimens and how to distinguish the British specimens. A different set of species occurs in America; but the methods by which the American species are separated may be applied to the American species; and to do this would help to stimulate the interest of the student. Some of the species resemble one another very closely; but there are slight differences in the tint and quality (length, density, and shagginess) of their furry coats. These differences are brought out very well in the colored plates which are among the very best reproductions of insects by photography in their natural colors that we have ever seen. Each species appears to have distinctive habits. Some live under ground in comparatively large colonies, with 200 or 300 workers, and will defend their nest, if disturbed, with great spirit. Others live on the surface of the ground, in communities not containing more than about 100 workers, which are very faint-hearted; and when the nest is molested they will feign death, and lie on their backs half hidden in the nest material, ready to seize and sting the fingers if they are touched. But the sting of the bumble-bee is not very severe, and it is used only under great provocation.

Bumble-bees are invaluable for fertilizing long-tubed flowers, such as red clover, for they alone of all the bees have tongues long enough to reach the nectar easily.

The book contains nearly 300 pages; is beautifully printed in large bold-faced type. We were told by some of the entomologists that recently met in Cleveland that this was undoubtedly the most complete work of any that has ever been written, and Mr. Sladen is regarded as an authority on the subject. We do know this: He has been gathering data for the last twenty years. Price \$3.25, postpaid, at this office.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

You ask, Mr. Editor, p. 4, for a way to mark a queen with a permanent color. In "Die Rassenzucht," Dr. U. Kramer, page 111, recommends a quickly drying lac—red, yellow, white, or blue—not so thin that it will run, and not so thick that it will not adhere. He gives full instruction as to the whole proceeding.

IN 1872—'3 I spent some months in Cincinnati helping in a subordinate way to get up the first May musical festival under the direction of Theodore Thomas. One day a quiet old gentleman came into my office to chat about bees. In spite of his modest demeanor he knew a lot about them. He was the Rev. L. L. Langstroth.

A. I. Root, do ye mind that time when we slept together in a western city at which there was a national bee convention? Next morning, as we walked along the street I was somewhat disconcerted to pull out of my pocket a night-cap. I made no use of night-caps, either the cloth or liquid kind; but I presently found out it had been put into my pocket inadvertently by the man who had slept with me.

NOTWITHSTANDING all the improvements that have been made in beekeeping, there's one thing that is no better in quality nor greater in quantity than it was 50 years ago. That's enthusiasm in the business. Young fellow, you think you're having a jolly good time learning all the up-to-date things in beekeeping. Well, we old codgers had just as good a time 50 years ago learning what was up-to-date at that time. Now hold right still while I tell you another thing. I've just as much fun now as I had 50 years ago in seeing what the bees will do to my plans after I've studied them out. So enthusiasm is a constant factor if you're a born beekeeper.

YE editor, p. 2, seems to have a desire that I should jab J. L. Byer for his views. All right; come on and be jabbed, Bro. Byer. You seem to hold, p. 6, that with solid combs of honey and nowhere else for the bees to cluster, bees will winter all right. That will leave the bees in layers $\frac{1}{4}$ inch thick between the combs; and if they *remain* with no better chance for clustering "during the weeks and weeks of cold zero weather," my guess is that they'll be dead. Your experiment will prove nothing, for, as ye editor suggests, the minute you stopped feeding them they began scooping out a winter nest. Moreover, you don't

say how much room they had to cluster under the bottom-bars. Surely more than $\frac{1}{4}$ inch. Editor Root holds that instinct makes the bees empty out a place to cluster. I suspect instinct makes them eat the honey, and that happens to leave the empty space. And I suspect that, if there was a possibility of keeping the combs constantly solid with honey, they would winter just as well without an empty cell in the hive. You say, "They can't warm up these slabs, because they project beyond the cluster where it is cold. These cold projections convey the cold back to the cluster." Say, Mr. Editor, did you ever see a solid comb project down through the cluster? Come down into my cellar and I'll show you the cluster of bees projecting down below the combs—two inches—but never a filled cell below the cluster. I don't know how small a space below the combs will answer for clustering; but I know that bees can cluster all right below bottom-bars, for I know my bees *do*. Theoretically one of you is just as far from my view of the truth as the other; but for practical purposes the Canuck holds the safer ground. Now, Mr. Editor, haven't I jabbed J. L. enough? [When you ask the question whether we ever saw a solid comb project down through the cluster, you are evidently thinking of indoor wintering. What we have had in mind all the time on the subject of winter nests has been *outdoor* wintering, and not indoor. As we said over a year ago, this question of the proper formation of a winter nest is not particularly important for indoor bees, especially if there be a large clustering-space under the frames such as you use in your cellar. But when bees are wintered outdoors, and the temperature outside (assuming it is a double wall) is 20 or 30 degrees higher, it is important, at least for our locality, to have a winter nest. If you could look over our outdoor-wintered colonies on a day when the temperature is about 10 degrees above zero, you would find that the combs in most cases project an inch or more below the cluster, and eight or ten inches beyond the cluster in the direction of the length of the hive. The point we tried to make was that solid combs of sealed stores that stick out beyond the bunch of bees into an atmosphere that is down to freezing, or below, will convey the cold clear through the cluster almost as badly as so many slabs of marble. The $\frac{1}{4}$ or $\frac{3}{8}$ inch of bees between the combs can not make up for this constant loss of heat.—ED.]

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Nearly half an inch of rain fell on Jan. 9. We are hoping it may be the beginning of the end of our long dry spell.

* * *

The condition of bees in general in this State is about an average, judging from reports received up to date.

* * *

Black brood is still spreading in our Southland. Every beekeeper should know of its approach, and prepare to combat it.

* * *

The price of bees has materially advanced in recent years. There are now but few for sale at \$3.50 or less per colony, as was the case a few years ago.

* * *

Some time ago I predicted a warm wet winter; but there is where I missed my guess and ruined my reputation as a weather prophet, as most of our local observers do.

* * *

Several men in Riverside Co., who expected to ship their bees back from Utah, are not able to do so on account of alfalfa-weevil quarantine. Some who extracted closely in anticipation of moving now find that they must feed heavily.

* * *

While visiting T. O. and L. L. Andrews, at Corona, I saw an automobile equipped with an extracting-house. It was the first I had ever seen, and it gave me a better idea of the bee business as conducted on a large scale, with an auto as a mode of quick conveyance for taking extracting equipment to out-apiaries.

* * *

Early in September I visited a beekeeper, and during my conversation I mentioned the imminent danger of black brood. Perfectly astounded, he ripped out an oath, asking what that was. He owns in partnership nearly 600 colonies, but never has time to read a bee paper. He will probably know more of this disease some day.

* * *

I was interested in J. E. Crane's description of the many kinds of hives he found in his inspection work. My experience was much the same while traveling over the country the past season, with the exception of box and frameless hives. We have a law in this State compelling the use of movable frames, to enable the inspector to work promptly and rapidly.

Beekeepers are, as a rule, very poor advertisers. Go into almost any chamber of commerce in southern California, and if you see any display of honey at all it is not likely to be of much credit to the industry. Almost all other products are better represented than our own—not because a display of honey would not be welcomed by our commercial organizations, but just through neglect of beekeepers.

* * *

ANOTHER PLAN FOR LAYING-WORKER COLONIES.

Louis H. Scholl, p. 720, Nov. 15, give your laying-worker colony a frame of unsealed brood, then put it in the place of a strong colony. In 24 hours you will find cells started, and the laying workers and their brood will disappear. I have yet to hear of this plan having failed. I doubt, however, if it is profitable to try to save a laying-worker colony at that time of the year.

* * *

BREEDING FROM THE BEST WORKERS.

The practical ideas of practical men are worth much consideration, as is shown by results obtained. The practical work of A. T. Warr & Son, of whom I have made previous mention, in selecting their best producing colonies for breeding purposes is one such instance. While they favored the Italian blood as much as they could, the productive qualities were to be considered first. Owing to the advent of black brood in the community they are now forced to Italianize for their own protection; but it is safe to say that only the best producers will be used for breeding after the try-out.

* * *

APIARIES THAT CAN NOT BE REACHED BY AN AUTO.

Louis H. Scholl, page 579, Sept. 15, says: "The automobile is a sign of progressive beekeeping." Perhaps to a degree this is true; but Mr. Scholl should know that there are some apiaries that can not be reached by auto, the owners of which are progressive enough to keep on good ranges and get the honey first, regardless of the mode of conveyance to be used in going to and from the apiary. To them this is a secondary consideration. A few good seasons in succession would make many of us progressive in that way, while bad seasons might for ever bar us from that class.

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Mr. Sladen, recently from England, gave a warning against importing any bees from the British isles for fear of getting Isle-of-Wight disease over here. Judging by what he and others who know say, this fell scourge has all the other bee ills "beaten to a frazzle." Certainly Mr. Sladen's warning is timely, and it would be a foolish thing indeed to take any chances.

* * *

Already "jabbed" by the editor, and with the prospect of being jabbed again by such a formidable assailant as Dr. Miller, is it any wonder that I look for the next issue of GLEANINGS with trepidation? (page 2, Jan. 1). But see here, Mr. Editor; you say something about steady cold weather about the "middle of January;" at which time enough honey will be consumed to give the colony a winter nest. Here in Ontario we often have that kind of weather all through December; so, what will happen when things pan out that way, and the combs yet solid with honey?

* * *

That article of Wesley Foster's on page 13, Jan. 1, which so entertainingly tells about the beauties of photography, I read with more interest than I could have deemed possible a few months ago. Can you guess the reason? Well, I have recently invested in a camera costing about \$20.00, an English machine called the "Butcher's Carbine." I never had my hands on a camera before; but by a strange freak of chance, the first six films used are all good, and I hope to use some of them soon in this journal. I have just returned home from the northern yard, over 100 miles away from home; and while there I took several pictures of the apiary to illustrate wintering outside. I have not tried to develop them yet; and on reading friend Foster's article I am fearful that I gave too long an exposure to the films. It is needless to say I shall find out just as soon as possible. Really I must stop writing along this line, else (before I know) I shall be classed as a "camera fiend" before I have even had a peep into the rudiments of the game.

* * *

LONGEVITY OF CARNIOLAN QUEENS.

On page 743, Nov. 15, the question is asked as to whether Carniolans are prone to supersede their queens; and in answer to this I must say no, most decidedly. As a matter of fact, I have often wished that such was the case, as one fault I have with them is that the queens are very long-lived, and will sometimes be left when they are

too old to be of good service. As I clip all my queens I know what I am talking about. No doubt claims are made sometimes by people who do not clip, so they can not be positive on matters of this kind. Some time ago I reported having kept a queen until she was seven years old—no doubt about the matter at all, as I have abundant evidence to prove the statement. Well, this particular queen was a pure Carniolan, and her wings were *all* off close to her back, so that there were additional risks according to some anti-clippers.

* * *

IS FOUL BROOD MORE VIRULENT AT TIMES?

On page 719, Nov. 15, Mr. Crane speaks of foul brood being more virulent in some places than in others, and says that he does not wonder at the variety of opinions expressed on the subject by different writers. What kind of foul brood is meant? If European foul brood I can understand how differences of opinion might arise; but if our old acquaintance American foul brood is meant, I can not agree with him. I have seen it in different counties in Ontario in all stages, and I can think of no malady affecting any living organism that is more uniform in its actions than this disease. As a general principle, it can be stated that larvæ die from this disease only when fed infected honey, or what amounts to the same thing, when a larva is hatched in a cell that has the disease scales, and thus becomes infected. Disease makes progress according to the number of larvæ that happen to get the disease given to them. As an illustration, the following will make the point clear; and as it is a common happening in sections where American foul brood is present, no doubt many have noticed how it works.

Let a colony that is foul be robbed out late in the fall when brood-rearing has stopped, and as a result it may be that none of the robbers will cause disease to break out in their colonies, for the simple reason that no brood is present and the honey is used before any larvæ are in evidence to be fed this diseased honey. On the other hand, let an apiary rob out a foul colony in the spring time, especially just at the close of fruit bloom, and every colony taking part in the robbing will be diseased—nothing surer. The same principle on a modified scale applies to all stages of the disease, and will always explain why a colony gets bad very quickly in one case, while another may have had the disease for quite a while before getting in bad order.

Conversations with Doolittle

At Borodino, New York.

YE OLDEN TIMES.

A correspondent writes. "If Doolittle does not have something February 1st about 'Ye Olden Times' in beekeeping I shall be greatly disappointed."

My memory goes back to the days when father kept bees in box hives, and to log-gum times. In that age fifteen and twenty pound boxes for comb honey were made of rough half-inch lumber with a hole bored in one side, over which was placed a piece of glass broken from a window pane through which I, as a boy, would peer to see whether any honey was being built. Usually I did not even see a bee inside. It had to be a good season to drive the bees into these boxes, for in most cases there was only one auger-hole, an inch or an inch and a half in diameter, through the top-board to the hive. This board was of about the same thickness, and the big empty honey-box was without any starter of comb. From our standpoint of to-day, this would be a great drawback; but, strange as it may appear, during one season father took as much as 70 pounds of comb honey from one of these rough hive boxes in which were hived two swarms which came out and clustered together. A few years later the lumber for these boxes was planed on the inside, and a piece of white comb stuck fast to the center of the top. This greatly promoted the willingness of the bees to enter the honey-receptacles. However, few of the farmers did little else than hive swarms in old boxes, portions of hollow logs, half-barrels, or nail-kegs, in those times of 60 to 80 years ago.

Then all colonies not needed for wintering were killed by setting the hives over fumes of burning sulphur. After the bees were dead, the hives were pried apart, or the old logs split open and the combs of honey cut out. In this way from each hive or log twenty to fifty pounds of honey were obtained, the best and whitest of which was put into bright tin pans to be disposed of, while all of the rest was put into a cloth bag and hung up before the fireplace to drain out as strained honey. After practically all the honey had drained out, the bag was immersed in water, as hot as the hand could bear, and the whole was kneaded and worked over with the pudding-stick till all the sweet had been separated from the comb. This sweetened water was boiled down to honey water. It was then used to sweeten apple sauce or pies. In these different ways much pleasure and enjoyment

was given to the family of the farmers who kept bees.

When I began to keep bees in the latter sixties, Langstroth hives were beginning to supersede the old logs and boxes. These were thought to be the height of perfection, for each had a honey-board on which were placed six boxes six inches square by five inches deep, each having a glass on two sides, the glass being on opposite sides. Before the glass was put on, three pieces of comb were stuck to the top of each box equal distances apart, to be used by the bees as guides for building their combs in a certain direction, as well as for starters. In this way I procured my honey for the first three years. I used these boxes more or less till 1875. They held from six to six and one-half pounds, gross weight, and, strange to say, I was offered 50 cents a pound for my 1869 crop.

After these came the four-pound box with its four metal corner posts and four glass sides. This box was considered the most fancy honey-receptacle that ever was, as two sides showed the nice white capping of the honey while the other two showed its color and quality, where the cells were stuck to the glass. I doubt if there were ever more attractive packages, when filled with honey, than these glass honey-boxes with their shiny metal corner-posts.

A few years later came the Harbison three-pound box, then the two-pound section, which was soon followed by sections holding one pound—some even going so far as to make those holding as little as a half and a quarter of a pound. Both of these, however, proved to be too small for any profit, so that the one-pound section soon became the standard, and has held that place until the present time.

I might speak of many things which would now be considered drawbacks, which came about in the transition between those old times and the present. Then we did the best we could without sections, queen-excluders, bee-escapes, movable frames, comb foundation, extractors, etc.

But I wish to speak of something which seems a mystery to me. In all of those years honey brought much more in return to the producer than it does in this, the twentieth century. Father used to trade that cut comb honey, from those bright tin pans, giving 12 to 18 pounds for a pair of shoes, according to the quality of the shoes and that of the honey. Then he could get a bushel of wheat for four pounds of this

Continued on page 78.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

INTERSTATE SHIPMENT OF DISEASED BEES.

Mr. Chadwick asks whether the bees spoken of as having been kept from being shipped into Colorado were known to be diseased. No, we did not know, except that the district where the bees are is known to be diseased. We did not try to stop the shipment by law, for one State can not legislate against another. All that was done was to notify the party of the conditions that prevailed where the shipment was intended to be made, stating that we would inspect the bees upon arrival. I do not believe that the county ordinances such as Mr. Chadwick speaks of would hold very many minutes under the rulings of the Inter-State Commerce Commission. A beekeeper would have to submit to inspection after arrival; but I do not believe that the shipment could be stopped unless the bees were known to be diseased. Our Colorado law is broad enough so that I think an inspector would be upheld in destroying all diseased bees upon arrival. This would not be just unless the disease was being introduced into a clean district. In a district where foul brood already exists, the man who shipped in bees, and a few were found diseased, should be accorded the same treatment that others in the vicinity are given.

Colorado at the present time has no European foul brood that we know of, and the beekeepers here would be very much in favor of destroying all colonies in a shipment that had this disease; and our law would stand back of the procedure. I do not think that such measures for the protection of bees from diseases are unjust. The good of the whole beekeeping fraternity is of more consequence than the desires of some unenlightened individual. Far more damage has been done by the indiscriminate shipping of diseased bees all over the country than by stringent laws that may seem to work a hardship on any one person. We must encourage in every way the legitimate spread of aggressive beekeeping methods; but the spreading of diseases must be curtailed also.

* * *

THE EFFECT OF TARIFF REDUCTION ON PRICES.

Local business houses are making increased efforts to clear their shelves of all stocks bought under present price conditions. Business men seem to be optimistic, but expect a readjustment of prices after the Democratic administration has begun its work at tariff reduction; and when the tariff is men-

tioned, the beekeeper immediately thinks of free sugar, and whether honey will be put on the free list. And the next commodity thought of is lumber. I do not know what will be done with honey; but the talk is strongly for free sugar, and perhaps the admission of lumber free of duty. Personally I believe that free sugar will aid rather than hurt the beemen. This will depend, of course, on whether sugar is reduced to the consumer by taking off the tariff. If we could get sugar for three cents instead of five or five and a half, much more of it would be fed in the fall to put the bees in prime condition for wintering. Being situated so far inland, and not familiar with the markets where foreign honey would cut a figure, I do not know what the effect would be if honey were put on the free list.

Lumber admitted free ought to have a definite effect on the price of bee-supplies; and it might be that the quality of the lumber obtainable would be improved. Taking the whole situation, I think that the beemen will not be averse to the general plans for tariff revision. What we are concerned in is a reduction in the cost of necessities for the home and in our business. One of the greatest promises of the times is that the people as a whole are asking for something definite—stated, not in political terms, such as tariff revision, but in terms of economics—a lower price for sugar, lumber, woolen and cotton goods, and all staples that consume the bulk of our incomes.

CONVERSATIONS WITH DOOLITTLE AT BORODINO, NEW YORK

Continued from page 77.

honey, and trade even-handed pound for pound for butter. And in the days of the six-pound box, I sold my whole crop to a dealer for 26 cents a pound, taking him four wagonloads, and on my return home loaded these wagons with coal at our nearest station, \$3.50 a ton. Now it takes nearly four pounds of honey to purchase what one pound did when father kept bees; and our nice section honey in one-pound sections, when sold by the wagonload, brings only 12½ cents instead of 26. Now a wagonload of coal costs \$6.80 at the same place where the \$3.50 coal was obtained in the days when beekeeping was carried on in a more primitive way. This state of affairs can hardly be laid to overproduction, as I verily believe that the per-capita consumption in those days was two if not three times as large as it is to-day.

General Correspondence

THE FUN THE PIONEERS HAD IN INVENTING NEW FIXTURES

A Bee-smoker Made of a Pan of Coals

BY DR. C. C. MILLER

How I'd like to go back and begin bee-keeping all over again with the facilities of the present day! Back yonder in 1861 the bill of fare was rather meager—no extractor, no smoker, no sections, no comb foundation, no excluder, and almost no literature. Movable combs had been invented, but I knew nothing about them. *The American Bee Journal* was started that year, but I didn't know of it. And yet I don't know. You who start in with all these things don't have the same pleasure I had in learning about each one as a new improvement. And then the lots of new plans and kinks that have been coming up all the time!

One thing, however, I'd like to have back again. I'd like to have honey keeping all the while at the same price as butter. It would seem pretty good now to have honey selling at 30 or 40 cents a pound. Another good thing of those bygone days was the delight of studying up some new plan or implement, lying awake at night thinking it over. Honey may never catch up with butter again in price, but the fun of studying up new things is just as great now as it was back yonder. In any given case there is always the zest that is given to it by the uncertainty as to what the bees will do with it when it is submitted to them. Even after being submitted to them there is the uncertainty as to whether they will do exactly the same next time, when conditions may be a trifle different.

The first surplus honey I produced was just as good to eat as any I produce now—just as white, but not so regular. A box with a capacity of five or six pounds, with a pane of glass on two opposite sides, was placed along with three others on top of a box hive, with a cover telescoping over it. Such a box, when filled, seemed just as pleasing a sight as the finest sections do nowadays. By way of something extra I had some boxes with four glass sides and wooden posts at the corners. The bees built comb in these boxes at their own sweet will except for the persuasion of a few pieces of comb fastened to the top of the box. If one or all of these starters fell to the bottom, the bees were not greatly disconcerted. They simply built from the bottom up.

This was quite in advance of what some

others were doing, whose only way to secure surplus was to brimstone a colony, and then dig out as well as might be the honey mixed with pollen and dead bees. The heaviest and the lightest skeps were "taken up," the heaviest because they had the most honey, and the lightest because they would die in winter anyhow.

The first sections were somewhat crude. They were in four pieces, and the top piece had in it a saw-kerf to receive the foundation. This top piece was partly split apart, and then brought together again after the insertion of the foundation. I didn't make very good work of it, and wanted to learn how to do it better. I wrote to A. I. Root, telling him exactly how I put in the foundation, making a sketch of it, and asking him how I should do it. I think I had no intention of having my letter published—only to have the proper instruction given in *GLEANINGS*, a publication that I think at that time was gotten out by the aid of a windmill. Promptly came back a round sum in payment for the letter, which was published in full; but not a word was given as to how the work should be better done!

I well remember my first visit to Medina. I reached it by stage, there being no railroad then. Wouldn't a stage coach have a busy time of it now, carrying out all the stuff shipped away by The A. I. Root Co.! On that visit I had the honor of showing A. I. Root an improved method of smoking bees. Yes, you might hardly believe that the man who has sent out so many smokers would learn from me any thing in that line, but he did. I don't remember what plan he was then using. I don't think that, at that time, he smoked them with tobacco as some others did, but the plan I showed him was to have ashes and burning coals in an old tin pan. He was much pleased with the improvement, and I had hardly left the town when he put it in practice, with the result that he jeopardized if he did not burn up a colony by setting fire to the sawdust that surrounded the hive.

A little later I tried to improve on this. I had a close-fitting cover on a kettle containing burning coals and brands, and attached to the cover were two small rubber tubes. I blew into one of them, and with the other directed the smoke upon the bees. It smoked them all right, only it didn't hold fire well unless I "blowed" all the time.

My! my! my! what changes there have been. What improvements! Will there be any more, I wonder? A few years ago a prominent writer said we were not to ex-

pect any more improvements in beekeeping. And yet improvements have been appearing right along ever since then. But I don't see any chance for further improvements—do you? Yet how many of us thought before they appeared that there was any need of sections, foundation, etc.? I don't know what they'll be; but I'm looking for just as great advance in the next 50 years as there has been in the past 50; and it may be that in 1963 some one will be writing reminiscences of "the many great advances in beekeeping since 1913." Who knows?

Marengo, Ill.

WINTER FEEDING; SOFT SUGAR VS. CANDY

An Open Letter to the Editor

BY ARTHUR C. MILLER

• In an editorial (Jan. 1, p. 3) concerning the supplying of extra stores in mid-winter to make up for any possible shortage caused by the mild weather of the fall and early winter, you quote me thus: "Mr. A. C. Miller recently made the statement that coffee A sugar (a moist sugar) can be given to the bees direct;" then you say you "have never tried it," and at once proceed to tell how to use it. Phew! Wait a minute till I whistle, or I may say something hot like ginger and suggestive of brimstone.

In some climates and conditions the bees *may* get by when provided as you direct, but in others, not, nit!

Now I, A. C. Miller, never *recommended* the A sugar for *winter*. You do not say specifically that I did; but taken with the rest of the editorial, that is the natural and unavoidable implication. If, perchance, some poor chump thinks a thing must be good because I said it (or was supposed to have said it), and goes and does something just near enough to what I did say to be *entirely different*, and the results are a bee funeral, there will be something unpleasant coming my way. Excuse my dodging.

Now, here is what I actually said concerning soft sugar for winter use: "Colonies have been wintered on it without any thing else, and that was in southern New Hampshire; but I want to know more about its use thus before I advocate it for such purpose." (Dec. 1, 1912, p. 771.) I have a sort of hazy idea that that assembly of words pretty distinctly conveys the information that I do *not* yet advocate the use of soft sugar for winter.

Let me quote again: "The soft A sugar put in a division-board feeder and hung in beside the brood-nest will serve to keep up brood-rearing as well as the most painstaking

feeding with syrup," etc. (Dec. 1, 1912, p. 771). That does *not* exactly suggest *winter* feeding—at least it doesn't to me.

In your suggestion as to how you think the soft sugar may be used for winter, you would have it put in a dish on top of the frames with sticks across the dish to give the bees access to it under the cushion. Just stop and consider what you have suggested. Little Mr. Innocent, not wanting a lot of paper pie-dishes, goes and uses a soup-plate from the pantry shelf. The bees find a nice cold stone over their heads, and not the remotest suggestion that there is food on top of it, and they starve. Remember, you are suggesting putting that Dutch ceiling over their bedroom in mid winter.

Well, to keep you from feeling too much remorse, I will grant that, between some warm spells, a thick cushion and a lot of bees, the latter do find their way up to the sugar. Bully! But old Boreas kicks up a muss, and the bottom drops out of the thermometer and stays out for a week. Well, why waste words on what happens? It is just as well if you and I do not know what that fellow says about us.

Before we go further, I wish to do a little defining so that, if possible, I can not be misunderstood.

There are several sorts of feeding, one for brood stimulation, one for stores given in mild weather, and one for emergencies given when, for any reason, it is not feasible to expose or seriously disturb the colony. Those "any reasons" may have to do with our personal convenience, as lack of time, dislike of cold fingers or wet feet, laziness, or plain every-day consideration of dollars and cents, as represented in time and material.

At this particular time we are considering the emergencies of colonies starving in cold weather, and we want to prevent that starvation; and if we are worth our keep we want to do it in the most effective and the most economical way.

So far as at present known, a slab of candy placed over the frames meets the conditions better than any other method. It is an old idea and a good practical one. But the making of the candy is a stumblingblock to many. Some will not take the trouble to make it right, others seem unable to do so; and still others, after one attempt, give it up in disgust, and try syrup or let the bees "go hang."

There are candies and candies, and some are good and some are only near good. Your hard candy is all right, but many persons will make a failure of it. The candy made after the Fuller formula (Sept.

1, 1912, p. 545) is easier to get just right. (Pure glucose for the purpose can be obtained from most candy-makers.) This candy has the advantage of *staying right* until consumed.

Common "fondant," as made by the candy-manufacturers, is excellent; but unless it is *just right* it will not stay right, but will soften when subjected to the conditions of the hive and run down between the combs. The property of "rightness" in fondant seems to be dependent on the proportion of tartaric acid to sugar and the time they are boiled together. Some candy-makers can make a firm non-softening fondant every time, while others can not.

On orders for one hundred pounds or over, most candy-makers will make up candy after any desired formula, and will cut it into blocks or slabs of any desired size, and at a cost not so very much above the cost of the sugar. Not a few beekeepers have the professional candy-men make their bee candy for them, considering it better and cheaper than making it at home.

Another word about soft sugar and I am done—no, not out of sputter, but just holding up for a future time.

The use of soft sugar for *stimulative feeding* was, so far as I can learn, first given to the beekeepers by Samuel Simmins, of England, and he should be given the credit for it. I have done so in previous articles, but did not in those quoted. It has been used in this country for many years, but does not seem to have become as widely known as its merits deserve. Now, if your editorial does not put a damper on its use by getting some people in wrong on it—and *they* will surely speak right out loud—its use may spread.

There, I feel better. As I bear no ill feelings, I trust that you will soon be able to sit up and take a little nourishment. As an *emergency* diet, I would suggest *candy*.
Providence, R. I., Jan. 9, 1912.

[Regarding the question of soft sugar for winter feed, we plead guilty that Mr. Miller did not recommend it for cold weather; but we see no reason in the world why it could not be used at such a time if it could be used in warm weather. While it is true that bees can get water during hot weather when they could not during winter, yet as a rule enough moisture collects in the hive to give the bees all the water they need. If the soft sugar is placed in paper pie-plates, the same being placed right above the cluster, as we recommended it, the moisture from the bees ascending will, in all probability, soften it enough more so that it will be excellent winter food.]

If we were guilty of misquoting, we are glad of it now, because it has drawn out a valuable article that will be a stimulus to further discussion of a very important matter—what to feed bees during mid winter when no combs of stores are available. In this connection, if Mr. Miller did not recommend feeding soft sugar during mid winter, there are others who did; but just who, we can not now recall. Very often, by reading a journal for a year one will gather a composite opinion; and that is precisely what we did when we misquoted our friend Miller.

Regarding "fondant" and any sugar using glucose, we have a fear that they will not be all that is desired. We should be more afraid of the use of fondant and candy with glucose in—much more so—than we would of soft cane sugar placed in the paper pie-plates above the bees.

Later.—We sent the above footnote to Mr. Miller, and he has made a further reply which follows.—Ed.]

MORE SUGAR.

That paper pie-plate seems to bother the editor. It is like a cork on a fishline, bound to bob up; but just wait until the condensed moisture he is banking on for the sugar gets in its fine work on that pie-plate, and he will have a first-class paper-pulp "flap-jack." Well, never mind; it is quite likely to be forty-leven miles from the would-be user, and he will try a wash-boiler or an ash-sifter or some other convenient thing.

Now, I hope that I am a brave man, or, what is perhaps as good, am believed to be, for I see danger in what I am about to do. I am going to tell just how the New Hampshire man used the soft sugar when he wintered the two colonies on it. The danger lies in my being given the credit of it and of recommending it, when, as a matter of fact, I am only reporting it.

In the first place, the man who did it was Mr. A. A. Byard, of West Chesterfield, N. H. In the second place, he prepared his bees in the fall, late in the fall, but still the bees could be handled. And he did it thus:

Three empty combs were hung in the middle of each of two chaff-packed hives. On each side of and close up to them were hung division-board feeders solid full of soft sugar. The spaces back of the feeders were stuffed full of dry leaves.

The bees were then shaken into these prepared hives. Now, I do *not* know whether he shook them in on top of the frames and feeders or down in front of the entrance and let them waltz in; but he got them into those hives and on to and between the combs—leastwise *most* of them—for he

so planned space to bees that when the latter had crowded in as tight as if Mrs. Mulligan's goat had butted them in, some of them still stuck out at the entrance. See the point? Well, it is this: The *whole space was full of bees*. That is *not* the way they are on combs of honey in a brood-chamber under normal conditions. No.

Over the combs, feeders, and bees he had a sheet of oilcloth (enameled cloth), slippery side down, and on top of that more leaves—lots more, nice dry maple leaves. (Packing is not my long suit, so you can tell that it is some other fellow's circus that I am talking about.)

Then he said "go it;" and he went, and the bees stayed; and in the spring the two colonies were as fine as any he had, and he had some fine ones.

Certainly he had to give more combs in the spring; but that is not part of this story.

Now, Byard is the man who did it. And I'll whisper another thing, though he may shake half the life out of me when he finds it out. (Oh, yes! he can, for he is almost seven feet long, and I am not.) It is this: Byard is a wizard—yes, sir, a sure-nuf wizard. I wish you could see him put foundation in sections—make you cry with envy. What has that got to do with soft sugar? I was only going to the foundation of the thing.

Don't worry, dear editor, don't worry, I mean about fondant and bee candy with glucose in it. A whole lot of beekeepers in little old New England have used it successfully for several seasons. It is a hard condition which confronts you, not a theory.

Providence, R. I., Jan. 15.

THE DESTRUCTIVE FREEZE IN CALIFORNIA

BY P. C. CHADWICK

Listen to this short story; preserve this issue for reference ten or twenty years from now. Jan. 1, 2, and 3, 1913, were as fair, bright, warm winter days as California may ever expect to see. On the fourth, the winter morning chill did not yield to the sun as usual. A cool wind began to shift from one direction to another, only to settle itself in the north. Near the noon hour it was a "nother in earnest." Dust became blinding; leaves were whipped from the trees; telephone wires were crossed and crisscrossed. Fruit-growers began to look

anxious; for the grave danger, *frost*, is always feared by them. All day and all night it continued; but instead of holding the temperature above danger, as expected, it went steadily down, in the face of the wind. All day Sunday, the 5th, it blew a gale; the highest point reached in temperature was 40 at noon. Monday morning, Jan. 6, gave us a temperature of 18, with a howling northern gale still in progress.

Many fruit-growers threw up their hands in despair. Many had smudged all night while the frost was penetrating the fruit a few feet from their smudge-pots.

By mid-afternoon another danger was approaching—the trees! the trees! back to the smudge-pots! save the trees! Tuesday morning, the 7th, great clouds of dense black smoke were hanging in the silent air. Auto load after auto load of smoke-begrimed men were arriving from the all-night fight with Jack Frost, to save the trees, dressed in gloves and overcoats, with heads wrapped tightly, and the wearers half frozen by the stinging cold.

Almost by accident I went into a plumbing shop where the plumber had just opened up for the day's business; but his telephone was ringing, "Water-pipe burst." Busier plumbers were never seen. Water-pipes burst by the score; closet-tanks were frozen; a fire-hydrant burst; ice in the gutters—everywhere ice, ice, ice; and all of this in Redlands, Cal., and the same tale may be told in any of our southland cities of the great so-called frostless belt. No man had ever seen such before, and we pray that none may ever see it again. The \$50,000,000 citrus crop of southern California is "gone up in smoke." People fail to realize the extent of the disaster.

But how about the beemen? I do not know. One thing is quite sure—every pollen-producing flower has been destroyed. The eucalyptus bloom is largely if not completely destroyed. All of our southland districts have suffered alike. All must wait for a new source to develop from which the little bee can gather an impetus for renewed hope sufficient to cause them to continue breeding operations. Orange bloom is doubtful as to the quantity the trees will be able to put out. Many trees are badly injured. As to the sage, we do not know. Hope is entertained that, if we should get sufficient rain, it will bloom profusely; but it may be the bloom is injured deep in the stem from the excessive freeze. No such freeze has ever been experienced in the recollection of the oldest inhabitants, so we must wait patiently our future.

Redlands, Cal.



This is not an iceberg, but an orange-tree in Redlands, Cal., on which the spray from a garden hose was left running during the night of Jan. 6, 1913. The picture was taken about 10 A.M., Jan. 7, and gives an idea of the intense cold in southern California on the above date. Photographed by E. T. Everett, of Redlands—to be copyrighted. Permission to print granted GLEANINGS IN BEE CULTURE.—P. C. CHADWICK.



W. A. Grove's apiary and honey-house, New Haven, Vt.

EXPERIENCES OF A FOUL-BROOD INSPECTOR

The Value of Vigorous Italians in a Diseased Locality

BY J. E. CRANE

Continued from page 58, Jan. 15.

One gentleman, whose reputation as an intelligent beekeeper was known to me, invited me to visit him, and I anticipated a treat. Almost all his bees were Italians, and he told me he had no fear of foul brood. I was rather surprised, because I had seen its deadly work in other places. But he stated that at one time he bought a lot of bees and transferred them into his hives and put the odds and ends of wax and honey out in the open for his bees to clean up, after which he learned that the colonies he had bought had foul brood. Almost every one of his black colonies was ruined, while his Italian stock remained uninjured. This made him wise, and he has since kept his stock well bred with Italian queens, and he has had little trouble with foul brood.

Last winter he went over to a town some miles away and bought eight or ten hives of black bees that were represented as being free from disease. But when spring came, European foul brood developed. "Now look at that one," said he. I looked, and found the bees black and in an advanced stage of foul brood. "Now look at this one," said he. "It was bad in the spring, but I put in an Italian queen." I looked very carefully, but not a trace of disease could I find. This beekeeper had no use for

"goldens," but wanted dark or leather-colored Italians. The fact that he has kept up his stock and had 160 colonies in one yard, while his neighbors that stuck to black bees had nearly all gone out of business, would indicate that there is much in his views and method of combating and curing foul brood.

I found another very progressive beekeeper trying to cure disease by using golden Italians; but I believe that where colonies were very bad, he destroyed the old combs. He has been fighting it for years, and feels that, with the assistance of Italian strains of bees, he has succeeded very well. The last time I saw him he thought his bees were entirely free from it, while most of the black bees in hundreds of colonies in his neighborhood are dead as a result of the ravages of foul brood. He told me one thing of great interest. He said that he had never been able to rear a queen in a foul-broody hive that proved to be of any value in combating the disease, and that to cure a colony the queen must be reared in a hive of healthy bees. It sounds reasonable.

I met another extensive beekeeper who was preparing to rear queens. He had about 200 colonies in one yard. He had had some trouble with foul brood, but thought he had it all cleaned out; but just as I was leaving I opened a colony of most beautiful golden Italians, and, much to his surprise, showed him some diseased brood. "There it is again. I supposed that, the yellower the bees were, the better they would resist disease," said he. I gave him

my opinion that the ability of bees to resist disease depended more on their strength and vigor of constitution than the color of their abdominal rings.

On the whole it now looks as though the introduction of vigorous strains of Italian bees might, in skillful hands, prove a short cut in curing European foul brood.

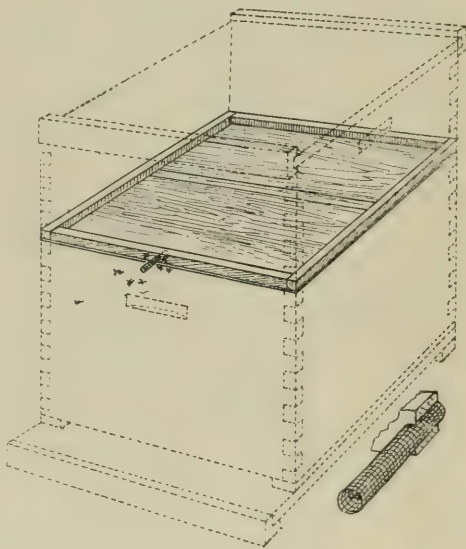
NEW STYLE OF BEE-ESCAPE.

Speaking of short cuts reminds me of a new style of bee-escape one beekeeper showed me, for which credit should be given to A. W. Darby, of Alburgh, Vt. It was simply a frame of one-inch lumber the size of the brood-chamber, with thin lumber one-fourth or three-eighths of an inch thick nailed to one side with a three-eighths hole bored in one end, into which was inserted a little tube of wire cloth about three inches long, and the diameter of a lead-pencil. It was used as a honey-board without the tube usually; but when wanted as an escape-board it was placed under the super, and the tube inserted. It then makes the best kind of escape, and costs much less than the Porter. We have tested it, and know it works very satisfactorily. The same answers for a honey-board, and the originator uses it for feeding and also for ventilating; for, with a hole through the bottom of this board, the bees in hot weather draw the air down through it and out at the entrance. When closed with a cover, or when a quilt is placed in it in early spring, it helps to retain the heat; and during very hot weather it is a shelter from the heat of the sun. The returning bees try to get into the super at the base of the wire-cloth tube, but not at the end. We have tested it, and it works perfectly.

GREAT DIFFERENCE IN TEMPER OF BEES.

I have found a great difference in the temper of bees in different yards. Some

are gentle, and very easily handled, while others are so cross that it is hard to find words to describe them. So far I have not



been able to account for the difference. I have sometimes thought some beekeepers were not altogether averse to seeing the inspector stung a little, as they seemed quite amused at his misfortune.

SOME ATTRACTIVE APIARIES.

One very intelligent beekeeper had two or three sheep in his bee-yard all summer. They kept it looking like a lawn, and it seemed to me the best plan I have ever known for keeping down the grass, as the sheep were never in the way. Another beekeeper, Mr. W. A. Grover, of New Haven, Vt., had an exceedingly attractive yard and honey-house. His apiary numbers 100 colonies; and, besides, he has a large farm;

keeps about 15 cows and 600 hens. I inquired how many dozen eggs his 600 hens produced. He said he did not know, but he had sold \$1300 worth of eggs in a year, and it cost him about one half for feed for them.

He hives his early swarms on old combs that he has wintered over; and after a colony has been queenless for seven or eight days, or long enough so that the brood is



Grass "mown" by sheep pastured in the yard.



FIRST ANNUAL CONVENTION OF IOWA BEEKEEPERS' ASSOCIATION.

Top row, from left to right: G. W. Fehleisen, B. A. Aldrich, J. S. Myers, A. D. Clancy, J. C. Donahue, M. E. Tapp, B. H. Tripp. First row from top: G. W. Nance, J. P. Blunk, L. M. Carlson, W. S. Pangburn, J. W. Stine, J. B. Espy, W. H. Winch, J. H. Schweer. Second row from top: J. C. Stocks, Arthur Wright, W. H. Pearson, E. E. Towns, Mrs. E. C. Wheeler, Miss Nina Secor, E. E. Townsend, R. R. Grantham, J. H. Burghdoff. Third row from top: A. F. Bonney, E. C. Wheeler, Eugene Secor, S. W. Snyder, Frank C. Pellett, J. L. Strong, M. G. Dada, J. A. L. Fourth row from top: Hamlin B. Miller, J. W. Schlenker, F. C. Scranton.

all sealed, he puts a new swarm on these combs. Of course the queen-cells are destroyed. He says they rarely or never swarm; and as brood is constantly hatching, the new swarm is maintained at sufficient strength to store an abundance of surplus if any is to be had.

Middlebury, Vt.

REPORT OF MEETING OF IOWA BEEKEEPERS' ASSOCIATION

BY F. C. SCRANTON

The Iowa Beekeepers' Association held its first annual session at Des Moines, Dec. 12 and 13. Both the attendance and the interest shown were very encouraging. Beekeepers from all parts of the State attended, and gave their experiences on the production and sale of honey. It was pleasing

to note the determination of all present to raise the honey standards as high as possible, and to clean up foul brood effectively.

Prof. W. J. Kennedy, of the Extension Department of the State Agricultural College at Ames, and Prof. H. E. Summers, State Entomologist, both addressed the meeting, and were heartily in favor of the college extending all possible assistance to the beekeepers of the State. Both of these gentlemen approved of the establishment of an apicultural department at Ames. Prof. Kennedy has placed Mr. C. H. True, of Edgewood, on the extension department in charge of apiculture for this season. Prof. Summers very generously proffered the service of his department in the inspection work. His men are continually covering the State inspecting plants and trees, and could very economically handle the bee inspection at the same time.

A constitution for the association was adopted, and the usual routine work of passing resolutions, appointing committees, etc., was carried out.

It was decided to ask that the State Entomologist be given an assistant in apiculture; that the State legislature provide sufficient appropriation to inspect apiaries and treat diseased colonies thoroughly; that to insure against spreading foul brood our present law should be amended to prohibit shipment of bees from outside the State or from one county to another without a certificate of health signed by some duly authorized Government or State inspector.

The following officers were elected for the ensuing year:

President, Frank C. Pellett, Atlantic, Ia.
Vice-president, J. W. Stine, Salem, Ia.
Secretary, S. W. Snyder, Center Point, Iowa.

Treasurer, C. H. True, Edgewood, Ia.

Directors: Dr. A. F. Bonney, Buck Grove, Ia.; Hamlin B. Miller, Marshalltown, Ia.; E. C. Wheeler, Marshalltown, Ia.

The next annual convention will be held at Des Moines.

A FURTHER NOTE ON THE SUPPOSED DISLIKE OF BEES FOR BLACK

BY JOHN H. LOVELL

It has been stated that a black object moving about in the apiary is more readily seen by the bees than a white one; conversely, in the darkness of night a white object is the more conspicuous. Moth-flowers blooming in the evening are usually white; blue or red petals would be almost invisible. In this connection it is not without interest to note that ghosts are always



FIG. 1.—F. A. Powers' telescopic covers with cushions nailed to inner covers, showing also the concrete hive-stands.

described as white—a black ghost would be an anomaly. Since white contrasts so strongly with black, it follows of necessity that, in the white light of a summer's day, a black object is more conspicuous than a white one.

A bright-red object excites anger or annoyance when inanimate as much as when endowed with life. When the wearer of a bright-red cloak in crossing a pasture is chased by a bull, if the cloak is thrown upon the ground, the angry animal attacks it, giving the wearer a chance to escape. Children may be rendered nervous and irritable, not only when dressed in bright-red clothing, but also by sitting much of the time in rooms with walls painted a glaring red. But if a black shawl be thrown upon the ground near a hive, or be spread over a bush, the bees pay no attention to it—at least they do not attempt to sting it. But a black animal moving about among the hives excites fear, and receives more stings than it would if white, because it is more conspicuous. But a beekeeper dressed in immaculate white, if he disturbs a hive of cross bees, will undoubtedly be attacked.

In the case related by Dr. Miller, where a small number of bees followed the black head of a hat-pin half a day, it seems not improbable that the smooth shining black ball exercised an attraction comparable to that of an electric bulb for many insects at dark. Naturally bees experience an antipathy to any one working in the apiary, and are inclined to follow him from place to place. The shining black head of the hat-pin would attract their attention

more than any other point on the person of the apiarist; and they would, therefore, be likely to direct their efforts against it more than to any other spot.

Waldoboro, Maine.

CONCRETE HIVE-STANDS

BY E. F. ATWATER

Among the beekeepers of South Idaho and East Oregon there are probably none who are deeper thinkers or more thorough beekeepers than Mr. F. A. Powers, of Parma, Idaho. Large in person, and with that cheerful disposition which makes him laugh when confronted with difficulties, one may well expect him to be a beekeeper of originality and enterprise.

Located on the fertile bench land at the east of Parma, with an abundance of alfalfa near by, with an orchard windbreak, his apiary of 250 colonies is very favorably situated. As Mr. Powers is a specialist in the production of fancy comb honey his hives and appliances are built with that end in view. His hive is virtually a standard ten-frame hive in which he uses nine staple-spaced frames and a heavy dummy. Owing to the cool nights prevalent in Idaho, and with a desire to maintain a favorable temperature in comb-honey supers, as well as to afford sufficient protection for wintering in the mild climate of the Boise Valley, Mr. Powers uses a telescoping lid perhaps 4 inches deep, with a cushion over an inner cover. The cover proper consists of a simple rim with tin or galvanized iron over the

top. The cushion much resembles a mattress about two inches thick, which holds its shape, and is nailed to the under side of the inner cover. While some beekeepers use a cushion above an inner cover, Mr. Powers is, so far as I know, the first to invert the arrangement, using the inner cover above the cushion. By having the cushion firmly attached to the inner cover it maintains its shape, and there is one less loose piece to handle. This arrangement, as shown in Fig. 1, is used on the hives the year round, with the best results, and certainly no other apiary which the writer has examined in early spring has shown the average strength of Mr. Powers' colonies in April, 1912.

Not being satisfied with the usual make-shift hive-stands, Mr. Powers has devised and now uses the concrete stands shown in figures 1 and 2. The method of making these stands is simplicity itself. Forms perhaps two inches deep, shaped as shown, and resting directly on the bare ground, are filled with concrete, and left to harden for some time.

EXPERIMENTS WITH DIFFERENT RACES.

Mr. Powers has experimented on quite a large scale to find the best strain of bees for the production of comb honey in his locality. Starting with an excellent strain of Italians, the first experiment was the introduction of Carniolan breeding queens, from which the entire yard was requeened. If I am not mistaken, from the resultant Carnio-Italian cross Mr. Powers secured the largest average per colony which he has ever taken.

About this time the rise of Banat bees occurred in our beekeeping periodicals. Imported queens of this race were secured and tested. It was found that the new bees, while perhaps not so prolific as the Carniolans, produced fully

as much fancy honey, perhaps even exceeding the Carniolans in whiteness of capping, in using the minimum of propolis and in gentleness.

The yard was then requeened with daughters of the Banat breeders, most of them mating with Italian drones. But after trying the Banats and their crosses for some years Mr. Powers has come to think less highly of them than before. Their universal fault, in this locality, is their diminution in strength and working energy during the blossoming of the second crop of alfalfa—the very time when we need colonies with a maximum of strength.

Meridian, Idaho.

[Nearly all the reports have indicated that the Banats are less desirable than Italians or Carniolans. It looks as though they, like the Punic, deserve to be forgotten.—Ed.]



FIG. 2.—How the concrete hive-stands are made.

Dec 10th

1872

J. S. Richards

Deliver to me on or before April 1st1871, at *Harpersville N.Y.* *Geo* of

JOSEPH GOULD'S COMMON SENSE BEE HIVES, for which I

agree to pay the sum of *Three* Dollars each on de-livery, for Value Received. *August 1871*

No. 1

Copy of a bee-hive contract of 43 years ago. See letter from George Richards, on another page.

INVENTIONS AND IMPROVEMENTS THAT HAVE TAKEN PLACE DURING THE LAST FORTY YEARS

BY E. R. ROOT

To record the history of the inventions or improvements, rather, during the last forty years means that I must go back at least twenty years further; for sixty years has really seen all the important developments that have made bee culture what it is to-day.

There are three inventions that revolutionized the methods of work with bees, and which really form the basis of all modern methods of management to-day. First and foremost is the invention of movable frames by Father Langstroth in 1851. No one to-day, either in Europe or this country, I believe, questions Mr. Langstroth's right to the honor of this great invention, for practically all hives and frames in use to-day are Langstroth's.

Next followed the invention of comb foundation by J. Mehring, in 1857. But the foundation he made had no side walls, and so it remained for Samuel Wagner, twenty years later, to develop the product that we now use with side walls.

The next great invention was that of the honey-extractor, by Major Francisco Hruschka, in 1865. There have been a large number of improvements that have made the inventions of Langstroth, Mehring, and Hruschka much more workable than they were originally; however, it is but fair to say that Langstroth came very near making his hive and frame almost perfect at the very start; and there are possibly thousands

of our readers who would consider the later improvements made in the Langstroth frame and hive of doubtful value. It is, nevertheless, a fact that the old movable frame, as first made by Mr. Langstroth, both as regards the dimensions and style, is still in use all over the world. For extracting purposes, some of our large honey-producers will have no other. They regard any thing in the way of a self-spacing attachment, either as part of the hive or frame, as unnecessary, and a backward step. But we will not stop to argue that question now.

The original comb foundation by Mehring was a very crude product; and it may be questioned whether or not Wagner should not share equal honor in the invention. The great improvements that were made in this article had more to do with the machinery for making the product than the thing itself. It may be egotistical for me to say it, but I believe my father, A. I. Root, did more to perfect comb foundation than perhaps any other man, unless it was his co-laborer and mechanic, Mr. Alva Washburn. He certainly introduced it to the beekeeping public. The first foundation was turned out on plates, and was, therefore, a very crude article, but A. I. Root (for I well remember his early experiments) conceived the idea of having it made by means of a pair of rolls. This suggestion came to him when noticing the wet clothes as they came out from a common wringer in his own home. After consulting this friend and mechanic, Mr. Washburn, a pair of rolls were made, the product of which was fully the equal of any comb foundation made on the modern machines of to-day. To Mr. Washburn be-

longs the credit of making perfect comb foundation on rolls that were mechanically correct. The only improvement made on the Washburn mills was in the *method* of making them, by which they could be turned out for one-fifth the cost, thus enabling every beekeeper to own a comb-foundation machine if he desired. Later improvements were made by E. B. Weed, which will be referred to later.

As regards the invention of Hruschka, several machines were made and put on the market. The one made by J. L. Peabody consisted of a can that revolved without gearing. The limitations of this were such that very few of them were ever sold. To A. I. Root (if you will pardon me again) belongs the credit of making some of the first all-metal extractors that used gearing, a stationary can with baskets, or containers, for holding the combs, so constructed that they could revolve inside of the can. Thousands and thousands of these machines were sold, and very little in the way of improvement was made until the reversible extractor was put on the market. The Cowan principle was applied to the two-frame machines, and later came the Root principle of a series of baskets geared together in such a way that the reversing of one pocket reversed all at the same time. Later came the invention of Mr. Frank G. Marbach, by means of which the pockets could be reversed *automatically* by simply applying a brake and slowing down the speed of the machine. This was followed by a slip gear and better mechanism, by which the extractor of to-day has from two to ten times the capacity of the earlier machines. In this connection we must not omit to mention the honey-pump that is now being used successfully on the large-sized extractors to deliver the honey from the extractor to a tank above or anywhere else.

There is one more important invention that, perhaps, ought to be classed with the movable frame, comb foundation, and the extractor; and that is the bee-smoker. Moses Quinby was the inventor of the bellows bee-smoker, which he brought out in 1875. This was further improved by T. F. Bingham, L. C. Root, and H. H. Root, younger son of A. I. Root. The modern bee-smoker is almost as indispensable as an extractor and movable frames; for without smoke, applied by means of a convenient instrument, the work of handling bees would be awfully disagreeable if not impossible at times. The invention of father Quinby forms the basis of all the modern smokers of to-day. But to T. F. Bingham belongs the credit of

devising a smoker that blows air into the fire-cup without sucking any smoke into the bellows. Mr. Bingham's invention consisted in leaving out the tube connecting the two parts of the instrument. While that at first thought might seem to be no invention, yet it made all the difference in the world between a workable tool and an unworkable one. The latter would go out and fill up with creosote, while the former would stay lit, burn any kind of fuel, and not clog up.

E. B. Weed, formerly of Medina, was the inventor of what is known as the "Weed New Process" for making comb foundation of a very superior kind in large quantities. His automatic machinery, with Washburn's and Howk's improvements for turning out the product, is now used in nearly all civilized countries of the world. This invention almost ought to be classed among the four great inventions—the movable frame, comb foundation, the extractor, and the bee-smoker.

An invention which is now in almost universal use, in this country at least, is that of the late Julius Hoffman, in what is known as the Hoffman self-spacing frame. While the old-style Langstroth non-spacing frame is one that is generally sold, the Hoffman-Langstroth is one that is listed by large and small manufacturers and dealers all over the country. It is an invention that has come to stay. I should say, however, that the present Hoffman frame is not the same as the original Hoffman; or, to put it in another way, the modern Hoffman retains only the self-spacing end-bars of the original, and not the Hoffman top-bar.

Another improvement was suggested by Mr. Francis Danzenbaker; namely, the lock cornering on hives. This feature has now come to be adopted by all modern hive-makers throughout the United States, and, to a great extent, throughout the world. Mr. Danzenbaker was also the inventor of a reversible closed-end frame that is being used by a large number of comb-honey producers.

The invention of the sectional honey-box is not attributable to any one person; however, A. I. Root was the first man to make one holding one pound. His first pound sections were dovetailed all around. Later on came the invention of the one-piece section, on which J. H. Fornerook secured a patent; but after long litigation from one court to another, the Supreme Court finally declared it "null and void for want of novelty." It was shown that one J. Fiddes and a number of others had made and used sections of this kind; so in the matter of one-

piece sections we shall have to divide the honor among four or five different people. Mr. James G. Gray, still of Medina, made the first practical machine for making one-piece sections. Later, machines for turning out section honey-boxes in lots of one hundred thousand a day were the invention of our Mr. George L. Howk.

The Porter bee-escape is one of the best little inventions that have been brought out. It is one of the few patented inventions that survived. It is used very largely by comb-honey producers.

Queen-excluders in the form of perforated zinc and spaced wires are inventions of merit. In connection with these we find entrance-guards and Alley traps that are useful. The Alley trap is another patented invention that survived.

The new steam uncapping-knife is an invention that is coming more and more into use. The Peterson capping-melter for melting cappings as fast as they come from the knife gives promise of being one of the inventions that will last; for it enables a competent man who follows directions to melt his cappings and separate the honey from the cappings immediately; so that when the day's work is done he will have his honey separated from the cappings, and the cappings made into wax ready for use.

Mr. Arthur C. Miller was the discoverer or the inventor of the principle that is now used in all modern foundation-fasteners using a hot plate; yet, strangely enough, not one of these fasteners bears his name. Mr. Miller was also the inventor of two or three different uncapping-machines, and of a steam-heated uncapping-knife. If he had applied for letters-patent on this kind of knife it would have been granted him, and he would be to-day considered the inventor, as he really is, of the steam-heated uncapping-knife.

An invention that gives promise is the Ferguson uncapping-machine. It has been tried in an experimental way, and some of its friends believe it will save a large amount of time over the old way with an uncapping-knife.

Mr. T. F. Bingham and Mr. Hetherington were really the inventors of the modern uncapping-knife popularly known as the Bingham. The Bingham-Hetherington principle is now used in all uncapping-knives, whether steam-heated or plain.

No one seems to have invented the double-walled packed hive for outdoor wintering; but A. I. Root was, perhaps, in connection with Mr. J. H. Townley, the first to apply the principle of chaff packing in double walls. As chaff is not now obtain-

able, other packing material is being used. Langstroth in the early 50's used double hives but not packed.

In the early 80's there were a hoard of inventions relating to feeders, foundation-fasteners, and reversing attachments for movable frames, nearly all of which died a natural death because they were impracticable and only increased the cost of management. When a good brother has been carried away with the invention of a feeder, foundation-fastener, or a scheme for wiring frames, or reversing frames, we almost feel sorry for him—almost as much so as for the man who has invented a new hive which *he thoroughly believes* is going to revolutionize all methods of management. While I do not class all inventors of feeders, fasteners, and hives as belonging to the crowd of ignoramuses, I am compelled to believe that most inventions relating to modern bee culture are not worth the paper that it takes to illustrate and describe them. This seems pretty hard on the average apicultural inventor; but if one will look through the Patent Office and inspect the list of 2000 and more of hive patents and bee-appliances, and then remember that only three, or four of these have survived, he will see that my statement is not far from correct.

Among the later hive inventions that have merit is the Aspinwall hive, based on the principle designed to prevent swarming. Whether this will ever come into general use remains to be seen; but its cost of construction, and the large number of extra parts that must be manipulated at intervals, will probably prevent this hive from displacing the standard hives in use to any great extent. The swarming problem is not a serious one in the production of extracted honey; and while probably three-fourths if not four-fifths of all the honey produced in the world is extracted, it will be seen that there will be a very limited demand at best for non-swarming hives.

In the way of minor inventions or improvements, rather, I may mention the omission of porticos on hives; and of bevel edges between the parts of the hives. A hive plain and simple, with a detachable bottom-board and a plain simple cover, is much more workable than some of the complicated affairs of the early days with moth-traps, porticos, etc. It is another improvement to have the hive body and supers of the same dimensions and the same depth, except in the case of half-depth supers, which are really multiples of the full-depth. In a word, the modern improved hive is made up of multiples of parts that will fit

each other in any combination, permitting of any degree of expansion and contraction to accommodate a large or small colony. This feature of interchangeability is prized almost as much as any one single invention, barring only the three great inventions first mentioned.

It might be interesting and perhaps enlightening to some would-be inventors to record here a list of the inventions that have died a natural death for want of patronage. Some of these at the time were widely heralded as revolutionary; but they never "revolutionized," but, on the contrary, sickened and died, as thousands of others had done. It is well that they did.

Perhaps at some future time, when we have more space, it may be interesting and profitable to give a list of these inventions, and explain when, where, and *why* they died.

BEE NOTES FROM CONTINENTAL EUROPE

Sending Honey and Bees by Parcel Post; Carried on in a Large Way in Most Countries of the European Continent

BY R. LINDE

If in matters apicultural some beekeepers over the sea are far ahead of those in the Old World, we have on this side of the ocean some institutions that seem to be far better developed than the same institutions in Uncle Sam's country. I have mainly in view our parcel-post system, the very importance of which, from a purely business standpoint, has long received the very closest consideration of the postal authorities in most of the larger states of continental Europe.

In almost every town, whether large or small, there are markets held once or twice a week for fruit-growers, kitchen gardeners, and farmers. The beekeeper, if he desires to sell his products directly to the consumer, and does not like peddling his honey, must resort to parcel post, and now we could not do without it any more than we could without the letter post.

There is a close similarity between the postal regulations and postal tariffs of most of the larger European states; so it will be sufficient if I give some data of our German postal institutions so far as parcel post is concerned.

It is really astonishing to note what a very large amount of business is carried on solely through parcel post in most countries on this continent. Almost every thing is sent into one's home by it. The post

cashs the bill when delivering the parcel. In nearly every large daily paper you find small advertisements offering to send honey in any quantity direct from the apiary. In most European countries, where protection prevails, food adulteration is carried on extensively, mostly in a refined sense or in a veiled way. Consumers have become very suspicious, and always prefer to buy from the beekeeper direct if they can get in touch with him. Now, that is really possible through parcel post, as the low rates allow even small quantities to be carried without unduly swelling the bill.

If one resides in a locality where little honey is consumed, all he has to do is to advertise in a paper with a wide circulation, in a large town, and he may be sure to get sufficient orders to dispose of all the honey he is likely to produce.

PARCEL-POST CHARGES.

There is a uniform rate for all parcels up to about 11 pounds (5 kilograms). The charge is about 12 cts. for all distances unless the parcel is to be delivered within a radius of about 50 miles, when only half of this amount is charged—namely, 6 cts. If the charge is not prepaid, an additional charge of 2½ cts. is made. Quite apart from this regular charge, a further charge is made for delivering the parcel to your home, which varies somewhat in the different postal districts, and amounts to from 2½ to 3½ cts. In fact, every parcel will be delivered at your home unless you sign a form at the postoffice declaring that you want to take your parcels yourself. In that case no delivery charge is made. This delivery charge, as separated from the general charge, is mostly overlooked—at least not taken into account by the general public when ordering goods offered at a certain price, carriage paid; therefore, while the parcel-post charge is, in many cases, borne by the seller, the delivery charge is always borne by the buyer, tacitly.

If the weight of the parcel exceeds eleven pounds, then an additional charge is made for the overweight in accordance to a zone tariff. For every kilo (2.2 lbs.) the parcel weighs above 11 lbs., an additional charge of 2½ cts. is made if the distance the parcel is to go is below 100 miles; the distance may be up to 250 or 500 miles, in which case this additional charge amounts to 5 and 7½ cts. respectively. The effect of this zone tariff for the overweight above 11 lbs. is to reduce the number of heavy parcels, for the handling of which the post is not especially equipped.

Parcels that exceed a certain measure—for instance, about one yard in length, are

barred from the ordinary rates, and are charged one-half above the ordinary rates. Living animals, as, for instance, bees, are charged the same as barred goods—that is, one-half above the ordinary rates.

This year I got by parcel post all the colonies I bought. A colony of 6 lbs. packed in a box, weighing not more than 5 lbs., would incur a postage of 18 plus 4 cts. delivery charge. In this country it is far cheaper to ship bees by rail, as all our state-owned railways have a special low freight rate for bees, and treat them as express goods. That means that bees are carried on passenger trains or express goods trains. However, the post reaches every small village, whereas the railway does not; so if you don't live close to a railway station it will probably be cheaper to send single lots of bees by parcel post.

For cashing the bill, the post charges 2½ cts. in addition to the postage for the money order that would be required for remitting the amount cashed. The cashing request may be put on a letter, a post card, or a parcel; the charge for presenting this cashing order is always the same, and must be added to the postage of the letter, the post card, or the parcel.

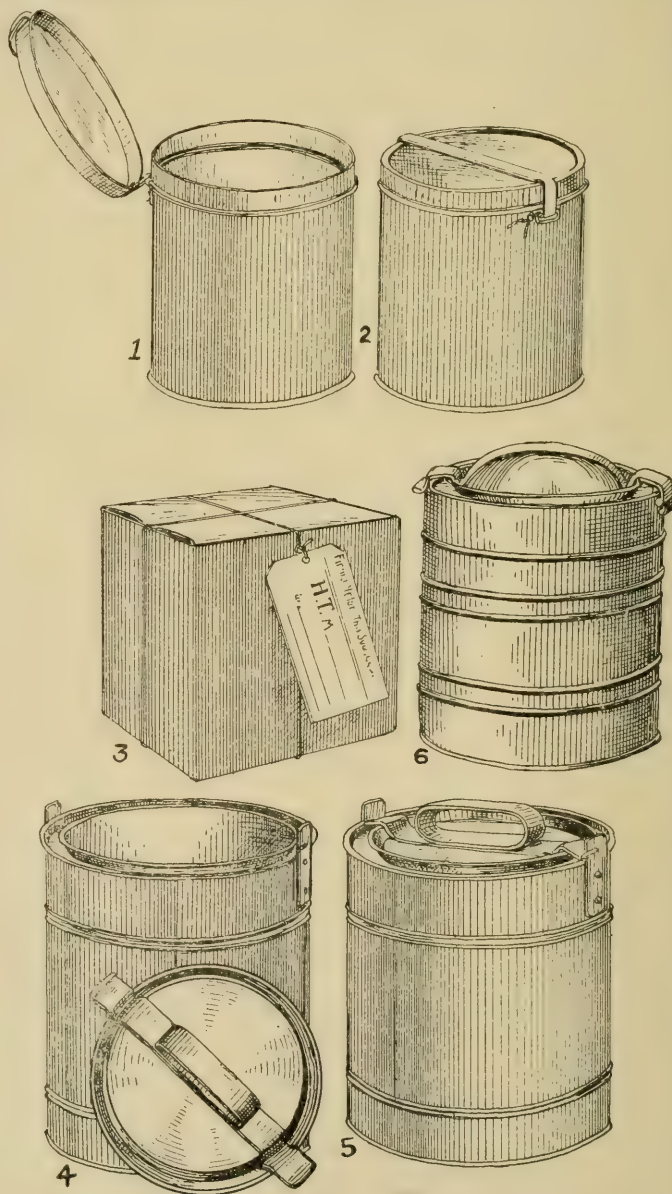
SELLING DIRECT TO CONSUMER BY MEANS OF PARCEL POST.

Let us take an example to make clear what expenses will be incurred from producer to consumer by parcel post. In this country, an eleven-pound parcel of good quality honey in a tin package (containing 10 lbs. of honey) is usually offered at \$2.50 post-paid, package included. The parcel-post charge amounts to 12 cts. (or

only 6 cts. if the distance the parcel is to go is within 50 miles). For presenting the bill, the post charges 2½ cts. The money-order postage for \$2.50 would be 5 cts., and for paying the money to the recipient at his home a further charge of 1 ct. is made. The whole transaction would incur an expense of 20½ cts.—that is, about 8.2 per cent of the amount in question.

HONEY-PACKAGES FOR PARCEL POST.

As a consequence of this ease of selling honey by parcel post, special packages have



Different packages used in Europe for sending honey by parcel post.

been put on the market over here. Illustrations of these packages will, I am sure, be of special interest to you just now.

Figs. 1 to 3 show a cheap tin, very extensively used for candied honey. For liquid honey the lid would not be honey-tight. However, it can easily be made perfectly tight by putting thin parchment paper over the mouth of the tin, then pressing the lid on only lightly, and trimming the paper with a sharp-pointed knife. The inside of the edge of the paper that afterward comes in contact with the tin is covered, by means of a small brush, with a thin layer of a molten mixture of beeswax and resin, after which the lid is pressed down firmly.

This tin is put into a box of corrugated paper, as shown in Fig. 3, and is then ready to be posted as a postal card.

For liquid honey the tin shown in Figs. 4 and 5 is far better adapted, being provided with a lever lid that is perfectly air-tight if pressed down properly. I am myself using the tin shown in Fig. 6, which is both simple and effective. The elastic iron bow pressed over the lid and secured to the body of the tin (on one side by means of a spring, the ends of which ought to be sealed with lead or sealingwax) serves as a carrying handle. I find that this kind of package travels better without any envelop of corrugated paper; because the postmen, seeing the tin, and instantly inferring that it contains a liquid (they hardly ever read the labels) don't dare throw it about, but always take it up by the handle. However, the bottom part of this kind of tin has to be made just a trifle stronger than was necessary with the tin shown in Figs. 1 to 3, and the body ought to be strengthened in the way shown in Fig. 6.

These tins usually carry about 10 lbs. of honey, so there remains a margin of one pound. The weight of the tin is a little over half a pound. The whole package comes close to eleven pounds when filled and labeled. There is some demand for tins taking only 5 to 6 lbs. of honey.

I have often wondered how it is that in English-speaking countries there is no parcel post worth speaking about. But they do not have state-owned railways in English-speaking countries. Perhaps in some way the interests of railway companies are affected by parcel post. Anyhow, the interests of railway companies, however powerful they may be, must not be allowed to stand in the way if the interests of the people demand parcel post. And that parcel post is of great help to the beekeeper, whether large or small, the fraternity on

the other side of the ocean will soon know by experience.

From GLEANINGS for Oct. 15, p. 645, I just learned (while writing this article) that parcel post will be an institution in the United States after January 1. It is true there are greater distances to be taken into account in the United States than in the countries on this continent; still, at the rates outlined above, a parcel may travel right through Germany and Austria-Hungary (between these countries there exists a special postal union), a distance equal to that between Florida and Ohio.

Beekeepers across the sea have my best wishes for the thorough success of their new parcel post, which, I am quite sure, will soon be deprived of its provisional character; because, once you have got it, you will soon see that you can't do without it.

Wendhausen b. Hildesheim, Germany.

REMINISCENCES OF BEEKEEPING 50 YEARS AGO

BY A. F. FOSTER

The happenings of a day shape the destiny of a family. It was a chilly November day in 1860. Father and I went six miles on foot for a cow and calf. The paths were sloppy with snow, and we were soon tired chasing through the brush up hill and down. As a slender lad I found the journey tiresome, and about the middle of the afternoon I wanted my dinner.

We came to a large farmhouse with a big barn, and sheds, orchard, garden, and a few hives. Mr. A., an Englishman with whom father had some business, offered us a lunch of bread and butter, milk, and honey. The women were away, but we were made welcome in a warm kitchen, and helped ourselves from the table with its huge loaf, a large pitcher of milk, a pat of fresh butter, and a bowl of yellow grainy basswood honey. The lad of sixteen had a boy's appetite, and this was his first taste of honey. He began with a sup of milk, a slice of bread, and butter and honey. Then some honey on another piece dipped in the cup of sweet creamy milk; then more bread and honey, and then some with silent reflections, "If pa would keep bees we might have honey on our table." Was it a prayer? Surely it was the "soul's sincere desire," and had a prompt answer, for father just then spoke of buying a hive of Mr. A.; and ere we finished the lunch the bargain was made and a box hive was ours.

Later during the summer of 1862 father joined the army of the boys in blue and

left me for nearly three years in charge of a poorly equipped farm, and with the care of a brave gentle mother, and four children younger than myself. The struggle with poverty was a pathetic one. Our brave mother passed away before our father returned; but during that dark period that colony of bees and one other engaged my attention. They had been placed side by side on a low bench in the garret of our stone house just under the roof. Two small openings one foot square answered for open doors through which the bees came and went in a constant stream. As we had no sections or smokers in those days I set about making some boxes to hold the surplus. From some old half-inch basswood siding boxes were made holding about five pounds each. A round hole about the size of a fist was made, and a scrap of glass tacked on the inside through which we could see when the bees began to work upstairs. A scrap of nice honeycomb in the further end led the bees to begin work there; and as the work came nearer the glass we easily determined when the box was finished. Two boxes upon the smaller hive, and three on the larger one, were changed again and again, until about 125 pounds were secured. This was, to our neighbor's thought, a marvelous crop, and yet I could see that my methods could be greatly improved, for a large cluster of bees had hung out all season, and had built combs enough to contain 50 pounds of honey; but later the combs were empty, the honey having been carried into the hive, which was a large one.

About this time I met Edwin France, of Platteville, at the county fair. I related my experience, and he took great pains to explain the management of movable combs, showing me his hive with bees in perfect working order, and imparting to me some of his enthusiasm. Later I visited his home and returned with a hive and colony on nice straight combs, which made the study of bees easy and fascinating. Some years later my brother, Oliver Foster, and I reared from a golden Italian some fine queens and began scientific bee culture at Mt. Vernon, Iowa.

In 1878, while traveling through Ohio visiting relatives, I called on A. I. Root at Medina. Mr. Root was busy in his shop with clocks and watches, but directed me to the back room where some of his helpers were working wax into foundation. Later in the day I called at his home where a lad (Ernest, I think) opened a hive in expert fashion and showed how easily bees may be handled, and made plain many mysteries

of the hive. I presume Editor E. R. Root hardly remembers the part he played in that day's program. This was before Wesley Foster had his name enrolled in the records of the Foster family.

In those early days the spirit of bee culture took a strong hold upon our affections. We had visions by day and dreams by night. We saw moving pictures of swarms in the clouds; hives in the shade; nectar in all the blossoms, and honey in ornamental cakes on the poor man's table. The children never seemed to tire of the business or of its fruits, and to this day we all like it. If there is any thing we like better, I suppose it is the opening of a hive just at the height of a first-class honey-flow to watch the bees do business in a well-equipped modern hive.

Boulder, Col.

[The writer of the above is the father of our department editor from Colorado, Wesley Foster.—ED.]

THE GREAT ADVANCE THAT HAS BEEN MADE IN 40 YEARS.

Seeing your call for show of hands for the "forty-year GLEANINGS family," I will say I don't know whether I am strictly in the class or not. I do, however, remember when, many years ago, GLEANINGS was the most interesting publication received, and it still keeps up that interest.

I remember when Novice was running his watch-making shop and keeping bees, or talking bees, or both. At that time he had an attack of bee fever, and had the power to transmit it to others.

I remember when the Bucket hive was used and exploited, and think I can remember when there was a pen picture of the wind-power mill shown in GLEANINGS. The enthusiastic Novice had a way of telling his experiences and troubles that was catching and instructive.

For many years copies of GLEANINGS were filed; but when, following Greeley's advice and coming west, the old copies were left; but to-day GLEANINGS is a welcome visitor, though I doubt if as eagerly looked for as in earlier days.

In a reminiscent mood, what wonderful strides have been made in methods and easy manipulation of hives and accessories! The old Simplicity hive answered its purpose, and was good then; but who would want it now! In those days there was no regular or standard size; and if you ordered your supplies at different times there was likely to be a variation of widths, so supers and hives those days and for some years later were not a smooth-fitting lot as now. The old-time honey-box, with its holes for entrance, answered its purpose too, and the honey was just as sweet, and you possibly got more per colony than when the finished section arrived; but after many vicissitudes the old box disappeared, and the commercial product was perfected and beautiful.

Pages could be written in memories of the business past and gone up to now; but for the present I will merely hold up my hand and still look and pore over GLEANINGS and keep some blessed bees.

Portland, Ore., Sept. 21. EDWIN J. LADD.

Symposium on Beekeeping 40 Years Ago

A Brief Word from Our Subscribers who were with us in the "Windmill Days" when Gleanings was First Started

Please put me down as a subscriber and reader of GLEANINGS from the start.

Denver, Colo., Nov. 4. J. L. PEABODY.

I have read GLEANINGS, I think, since 1872, and have been keeping bees ever since.

Florin, Pa., Aug. 24. H. H. MYERS.

I have 60 colonies of bees. I am one of those who read GLEANINGS in the windmill days.

Gardiner, Me., Sept. 2. O. L. SAWYER.

I have taken GLEANINGS since 1872. It was when it was printed by means of the windmill, and I don't think I have missed a number.

Shellsburg, Ia., Aug. 23. R. QUINN.

Novice's paper has been in my hands ever since it was published. I have a great many full volumes complete, but not all.

Groton, N. Y., Aug. 30. W. L. COGSHALL.

I was taking GLEANINGS when it was printed by windmill power, so up goes my hand. I was 73 years old the 2d of this month.

Lemore, Cal., Aug. 20. J. F. FLORY.

I noted in a recent number of GLEANINGS your call for the names of subscribers of forty years ago. This is to inform you that I was among the number.

Altamont, N. Y., Sept. 10. W. D. WRIGHT.

I was a subscriber to GLEANINGS back in the windmill days. I still keep about 25 colonies of bees, and still read GLEANINGS, but more for the Home papers than for bee culture.

Elm Grove, W. Va., June 24. WM. BITZER.

I am one of the 40-year subscribers. GLEANINGS was then a small pamphlet of two or four leaves, may be. I have always had bees. For many years I kept about 100 colonies.

Bangor, Pa., Aug. 23. JOHN H. JOHNSON.

Some time ago you asked for the names of those who had taken GLEANINGS longest. I have now read GLEANINGS from the first number, which appeared on January 1, 1873, and have the complete set of volumes to date.

Taunton, Eng., Dec. 6. THOS. WM. COWAN.

I am one of your windmill men. I was in Medina two or three times after some bee supplies. I have taken GLEANINGS most of the time, and I think I got more good out of it than any other paper. I am over 75 years old.

Cleveland, O., Aug. 22. H. C. GREEN.

I have taken GLEANINGS from the beginning, having found my first swarm of bees when a boy about 45 years ago. I found it hanging on an oak when I went after the cows. I have kept bees ever since. I am working three yards of about 250 colonies. I have on the hives now about 3000 lbs. of honey. I am 64 years old. I had in one season 10,000 pounds.

Amity, Orange Co., N. Y., Aug. 26. J. W. UTTER.

Noticing your request for the names of those who were subscribers to GLEANINGS in its windmill days, you may count me in, as I've read it ever since its first days.

Otsego, Mich., Aug. 24. O. H. TOWNSEND.

Replying to the call for those who were subscribers 40 years ago, put my name down. I have received every issue of GLEANINGS as soon as out, and have the entire collection.

Hamilton, Ill., Sept. 2. C. P. DADANT.

I am one of your subscribers who began reading GLEANINGS, Vol. I, No. 1, and the writings of A. I. Root in the *American Bee Journal* in the sixties. I bought my first colony in a box hive in 1863 or 1864.

Lewiston, Me., Aug. 22. HORACE LIBBY.

I am one of those who have read GLEANINGS since its first issue. I don't know that I have missed a single number in all that time. I also read the letters of "Novice" in the old *American Bee Journal*.

Derby, Tex., Aug. 22. I. A. KING.

I commenced taking GLEANINGS with the first issue, when published by windmill power; and, with the exception of one or two years in the eighties, I have been taking it continually from the first year of its publication.

Farmington, Pa., Sept. 5. W. L. KEMP.

I think I must have been a subscriber to GLEANINGS for about forty years, for I believe I have received every number from the very first, when it pushed itself out into the great bustling world, scarcely knowing whether to live or die.

Middlebury, Vt. J. E. CRANE.

I commenced taking GLEANINGS 32 years ago, and have been taking it ever since, except two or three years when I first came to Colorado, as I did think, from first impressions, that a bee would starve here. I soon found my mistake, and went into the business again.

La Junta, Colo., Oct. 21. H. S. SHULL.

I commenced reading GLEANINGS in 1872, and have been a subscriber ever since unless, possibly, I missed one year. I do not take the interest in bees I did when I first subscribed, but take it for the Home papers. I hope you, Terry, and C. C. Miller may live to see your centennial.

Monmouth, Ill., Sept. 26. J. H. REED.

In your editorial of Aug. 15 you ask for a show of hands of those who were subscribers to GLEANINGS 40 years ago. I think I can hold up my hand, for I received GLEANINGS from its first number until the present time, and handle bees and raise a few queens.

Council Bluffs, Ia., Aug. 19. EDW. KRETCHMER.

You may place my name on the 40-year list (old windmill times); and, besides all that, I believe I have all the articles written by A. I. Root as "Novice" in the old *American Bee Journal* in Samuel Wagner times. I well remember those days when GLEANINGS was started—I think four copies the

first year, and since I have looked for their appearance with much regularity, and they have always been very welcome. May GLEANINGS live another 40 years, and for those to come after.

Oswego, N. Y., Aug. 25.

F. H. CYRENIUS.

I was one of your subscribers, or nearly so, of 40 years ago. My postoffice at that time was Flat Ridge, Ohio. I have never missed a number since, and have never lost my enthusiasm yet for both the bees and for GLEANINGS. I wish you all long life and prosperity.

Larned, Kans., Aug. 20.

A. H. DUFF.

I believe I have taken GLEANINGS all of the time since its beginning—surely back into the time it was printed by windmill power. I am still in the bee business, having bees in three yards here, in the Catskill Mountains, and also in Colorado; but I am not giving them very much of my own personal attention.

Windham, N. Y., Aug. 23.

O. R. COE.

I subscribed for GLEANINGS during the first volume, and have been taking it ever since, and I feel proud of it. I shall be 72 years old in a few days, and I am in hopes the proprietor may live to see his one hundred. I have kept bees ever since I commenced taking the journal, and expect to as long as I live.

Noah, Miss., Aug. 31.

A. COX.

I commenced to keep bees in 1858, and have been at it since that time. But I feel that it is about time to drop some of it. I go to Florida winters, and I have a few colonies of bees down there which furnish us with a fine grade of honey. I am 64 years old; my health is good, so I think that I can care for bees for ten or fifteen years or more.

Groton, N. Y., Sept. 25. DAVID H. COGGSHALL.

I have not taken your magazine quite as long as 40 years, but long enough to hold up one hand, at least, for I have, with the exception of three or four years, been a reader and subscriber to your magazine for 39 years, and still enjoy it fully as well as ever, especially Conversations with Doolittle and the Home talks, along with lots of other good things with which the magazine is filled twice a month.

Auburn, Me., Aug. 24. MRS. ELLA STOCKMAN.

I read GLEANINGS in windmill days, when you printed the pages diagonally, when you had trouble because the wind did not blow until dark, then came with a rush. We have taken GLEANINGS ever since when we were settled. We sent you subscribers from Missouri, Oregon, and Washington. We could not keep bees without it.

Mrs. JESSIE W. THORNTON.

North Yakima, Wash., Oct. 11.

I have taken GLEANINGS from the first issue, and have had a few bees ever since, and would not like to discontinue as long as I live. I shall be 76 if I live till Jan. 30, 1913. I have always liked Mr. A. I. Root's Home department. I think his talks are very uplifting. His temperance talks are to the point. I also like his gardening and his poultry articles. May he live long and continue to prosper.

Maria, Pa., Nov. 8.

SAMUEL KEAG.

I read GLEANINGS when it contained only a few leaves. They were placed inside of the *American Bee Journal* that I took. I was then keeping bees in California. I have read GLEANINGS and kept bees ever since, with the exception of eight years,

when I lived in Dakota. I shall be 88 years old next month. I was born in Germany in 1824, and have lived in the United States since 1829.

Nerstrand, Minn., Aug. 22.

J. BECKLEY.

I have been looking for that list of gray heads in the honey business in the 70's. I count myself one of them. I think it was in 1872 that I purchased my first swarm of bees in a box hive, and subscribed for GLEANINGS when it first came out. I remember very well the windmill days. I expect to engage quite extensively in the business here, as it is the best location I have found yet.

Ulysses, Pa., Sept. 17. GEORGE A. WALRATH.

We have read your paper since about the first year it started, and have been a subscriber nearly every year of its publication. You signed yourself "Novice" then. The American beehive was about the only hive used, as well as the Peabody honey-extractor. We have a portion of this same old machine yet. We still keep bees, but we have injured our bee business by dabbling in other pursuits.

Plattsmouth, Neb., Aug. 26. J. M. YOUNG.

I note your request in editorial, Aug. 15, for a show of hands of those who took GLEANINGS in the "windmill" days. If you have the old subscription lists you will find my name in Vol. I., No. 1. Then I missed a few months, possibly a year, and have taken GLEANINGS ever since. I still keep bees. My brother and I have 100 colonies now. I am now 59 years old, so you see that I was quite young when I first subscribed for GLEANINGS.

Ballston Spa, N. Y., Aug. 22. J. I. PARENT.

I don't know but I am a forty-year subscriber. My brother and I ran a shop here in 1870. We had a planer and all kinds of saws. We made a lot of Mr. Gould's hives. Along in the 70's I took GLEANINGS. I gave away a good many copies of GLEANINGS to men who got the Gould hives. Mr. Gould sold farm rights to farmers to make and use. We kept from 25 to 50 on hand all the time.

GEORGE RICHARDS.

Harpersville, N. Y., Aug. 26.

[See copy of old bee-hive contract on another page.—Ed.]

I read with much interest your editorial, "GLEANINGS in the Windmill Days," and I wish to state that I have been a subscriber since its first year of publication. More than that, I have every volume bound, and prize them more than any works in my library. I am a five-year subscriber to GLEANINGS, and it is about the only journal that I have the time to read. I was first interested in GLEANINGS through the Home talks by A. I. Root, and have been in the honey business ever since.

Denver, Col., Aug. 22. J. CHARLES FRISBEE.

I have read GLEANINGS most of the time since its first issue, and my beekeeping antedates that time some years. My first bees were purchased June 12, 1858, and I have been in the business more or less ever since. I met A. I. Root at the first annual meeting of North American Beekeepers' Association, held at Cleveland, O., Dec. 6-8, 1871, which was presided over by the late M. Quinby. I have before me the first volume of the *American Bee Journal*, published in 1861; and according to my recollection it is the first publication of its kind attempted in this country. How things have changed since then!

Hendersonville, N. C., Aug. 26. SAMUEL RAU.

I was more than pleased to read your plan for 1913 for the dear old GLEANINGS. I have taken it continuously since it was published as a quarterly, and I can not recall now ever having missed a single number. What a record!

You will remember that, years ago, Stachelhausen and myself were the first to bring out "shook" swarming. Well, we still practice it—couldn't run 1000 colonies for comb honey without the plan, with three people.

Hyrum, Utah, Dec. 12.

M. A. GILL.

I have just noticed in GLEANINGS a call for the old members of the GLEANINGS family to hold up their hands and say "here." I have been a continuous subscriber ever since the windmill days, never having missed a number. For the last five years I have kept no bees; but the fever is still in the blood, and I am keeping posted in the business, and expect, if life and health are spared, to have a nice little apiary in a good location in this, the fairest and best part of God's green footstool.

Ontario, Cal., Sept. 19. J. V. CALDWELL.

I received your notice as to the expiration of my subscription to GLEANINGS. I will renew in a few days. I noticed that you called for the names of the old subscribers to GLEANINGS. I commenced to take it about the first it was sent out. If I remember rightly, it was only a folder of two leaves. I was taking the *American Bee Journal* at that time, edited by Samuel Wagner at Washington. I think it was H. A. King who accused "Uncle Amos" of "shooting poisoned arrows in the dark" because he signed his name "Novice."

Attica, O., Dec. 16.

J. E. ENNIS.

In GLEANINGS for Aug. 15 I see you think it would be interesting to know how many subscribers were left after 40 years, and I think I may claim to have been with you 40 years ago, though I am not certain. At any rate I had dealings with you 34 years ago, and in 1887 I spent a day at Medina, and A. I. Root was digging a well there, I think for a windmill. I know I went about with him for a part of the day. I have no recollection of E. R. Root, though I think I saw him. I am glad to see the advances made in the buildings and management of what has grown from comparatively small beginnings.

ALFRED J. CLARKE.

Longwood House, Oxford, Eng., Oct. 3.

For a holdup of hands for the windmill days, mine is up. Though a school boy in my teens, I got the bee fever while on my father's Virginia plantation; swapped a watch for a bee-tree, and have kept bees and taken GLEANINGS, practically continuously, for more than thirty years.

Well do I remember those early writings of A. I. Root, the windmill power, Merrybanks and his Neighbor, and Blue Eyes and the rest. Specially was I impressed with the moral and religious tone of the Home papers; and it made a good impression on my young life. His conduct of the Sunday-school, family prayers, and religious services in the workshop show a strong character in the right place.

Washington, D. C., Sept. 2. F. P. NASH.

I have not taken GLEANINGS for 40 years, but made its acquaintance in the year of 1878, when I became so interested in it that I procured almost all of the back numbers, and I think I have had and read almost every copy that was ever printed.

It was in GLEANINGS that I first read the A B C; but I have had many copies since that time—had to, to keep up with the times. I hope to have and read every number that is printed as long as

I live, although it is possible that I shall not be able to see to read them myself. If so, I have good children to read them to me. I hope that GLEANINGS will live as long as the world stands, as a monument to its founder, whose writings I have enjoyed so many years.

CHARLES W. PHELPS.

Binghamton, N. Y., Aug. 29.

The undersigned commenced beekeeping in 1860 or '61 in Murfreesboro, Tennessee, and during the Civil war, or soon after, he subscribed for the *American Bee Journal*, published in Washington, D. C., edited by Samuel Wagner. A. I. Root was an interesting correspondent of that journal, writing under the *nom de plume* of Novice long before he published GLEANINGS, which was a very modest publication compared with GLEANINGS of the present day. Your books will probably show that I was a subscriber 40 years ago.

Quinby, Langstroth, Wagner, Alley, Hamlin, King, and many others, not now recollected, beekeepers and authors of that day, have passed away. I came to Florida in 1893, and still keep a few bees.

Tampa, Fla., Aug. 25. W. P. HENDERSON.

I am one of the number who took GLEANINGS in the good old windmill times, and I think I have all of the numbers that were ever printed. While I have not kept as many bees as some, I believe I have had some all of the time except one year, GLEANINGS has always been a very desirable and helpful paper, and somehow I always find the Home department very good.

There, now, as my mind runs over the last 40 years there seems to be a sort of sadness in my heart to think I have made so many failures in my Christian life. However, I am glad I have made an effort to live in the world to come. How I should like to grasp your hand for old and continued friendship! and may we meet beyond this vale of tears.

Dexter, Maine, Aug. 20.

A. R. BODGE.

A TON OF HONEY FROM SIX COLONIES.

I believe that I became a subscriber to GLEANINGS in its early days. I was living then at Lewisville, Pa., and was a beginner in beekeeping. I removed from Lewisville to Oxford, Pa., and continued the care of an apiary, importing Carniolan queens and advertising Carniolan queens for sale, and mailing many hundreds to all portions of the United States. I disposed of my apiary in 1890 and removed to Colorado Springs. From there I removed to this place in 1899, and again secured an apiary of Carniolans which have carried in for my disposal an average of 200 pounds per colony annually. One year, with a hundred acres of alfalfa on my ranch, six colonies gave me one ton of honey. I am still an interested reader of GLEANINGS, particularly Our Homes.

S. W. MORRISON, M. D.

Oxford, Colorado, August 23.

THE SHEEP AND WOOL INDUSTRY AN ADJUNCT TO BEE CULTURE.

I have been a continuous subscriber to the *American Bee Journal* since early in the '60's; and have also been a continuous subscriber to GLEANINGS. I have been a beekeeper continuously for 49 years; have seen a great many changes in the business in that time. The seasons in the earlier years were good; now they are practically a failure. When the sheep industry left our community, the white clover left. That was our dependence for surplus honey. Are not my conclusions correct? Is there anybody who can report abundant crops of white clover

where there are no sheep kept in the vicinity of said crops of clover? Is there any possibility of the white clover ever returning again without the return of the sheep? I think not. If there is anybody else who can produce any evidence to the contrary I should be pleased to hear from him through GLEANINGS. I feel considerably interested.

ALFRED J. FISHER.

East Liverpool, Ohio, Dec. 12.

Forty years ago I was a boy of six, and am not able to remember accurately just when the first number of the magazine came to our house; but I am pretty sure it began with the first number published. At least it was when GLEANINGS was a baby, and from that time until the present we have never missed a number. As soon as I was old enough I went into the business with my father; and at his death, eleven years ago, I had the subscription transferred to myself. "Uncle Amos" is a household word with us. We would feel as much lost without the visits of our bee paper twice a month as we would without our bees. Our children have been brought up on bread and honey, and are a healthy pair of young people, and a credit to the diet.

While not exactly one of the original subscribers myself, you see I was brought up right with the magazine, and hardly know where to draw the line, especially as the change was so slight from my father, C. H. Longstreet, to your present subscriber and friend—

Coronado, Fla., Sept. 9. H. C. LONGSTREET.

I have subscribed for GLEANINGS ever since the first number was published, when the windmill furnished the power, and when "Novice" made some of his engravings with a saw. Before me lies Vol. --, No. 1, headed:

"Novice's GLEANINGS IN BEE CULTURE; or, how to Realize the Most Money with the Smallest Expenditure of Capital and Labor in the Care of Bees, Rationally Considered. Published Quarterly. Medina, O., Jan. 1, 1873."

I have every number published since then, and it has been one of the chief pleasures of my beekeeping life to read and study GLEANINGS.

On Dec. 30, 1898, when GLEANINGS was 25 years old, A. I. Root presented me with a glass dodecahedron, which still adorns my writing-desk.

I may say that I have been a constant subscriber to the *American Bee Journal* since the beginning of 1871, and therefore used to read and enjoy "Novice's" articles in that paper before GLEANINGS was born. May he continue for many years yet to instruct and cheer those who have known him so long.

WM. MUTH-RASMUSSEN.

Independence, Inyo Co., Cal., Aug. 26.

I took GLEANINGS for many years when first published. I was then living in Brookfield, N. H. I moved to Boston, and dropped beekeeping for 16 years. I moved here three years ago, and had bees again within a week. I have had bees upward of 35 years. I never knew a year but that I had more or less comb honey. Our great flow in Woburn is in August and September.

With a protected hive having a cap covering all the supers, a queen that will keep ten frames practically full of brood all the time so the hive is boiling over with bees, I have never failed to get honey. Sooner or later there will be a flow, and ten pounds a day is nothing for such a colony. I have had as high as seven from goldenrod in September in New Hampshire. Massachusetts is an old settled country; and if the editor lived here he would write some very different articles. Shrubbery and hedges like

sumac and clematis and many others cut a big figure. Our town raises more squashes than any other in Massachusetts, and lots of beautiful honey comes from them. There are not a dozen basswood trees in town, and only goldenrod enough to tinge the clematis (cultivated, not wild). Creeping Jenny grows everywhere, a great yielder of fine white honey. My best colony last year gave 70 lbs. in August and September in sections, and according to appearances now it will beat it this year.

Woburn, Mass., Aug. 30.

E. C. NEWELL.

I am only a boy yet, 60 years old; but I kept bees when I was 17. The first bee book I ever read was an old one my father had—The American Beekeepers' Manual, written by T. B. Miner in 1849. It marked the change from the straw and log gum to a square box with a small box on top. The next after that was a book written by Moses Quinby, I think; but my start in beekeeping was due to a neighbor who sold his place and wanted me to take his bees on shares. I think there were 14 colonies. The hives were 14 inches wide, 14 inches deep, and about 20 inches long. The whole back was a door. The bees' part was 12 by 12 inches square, with glass in the back. On top of that were placed two boxes, 6 by 6, and 12 inches long, with glass in the end, all home-made; and I still have two hives, with no bees in them, that I made in 1879.

I knew of Mr. A. I. Root 40 years ago, and I think I also read GLEANINGS from the first.

I have never been a big bee-man, nor kept bees all the time, as I have sometimes been where I could not; but whenever I could I had them, and now I have nine colonies in our back yard in the city of Hudson, and I love the little scamps as well or better now than I did 40 years ago; and I remember as a boy I used to love to take a book or paper and sit among the hives, and read, and hear the bees hum. It was music; and how I used to watch them pile in ahead of a shower!

Hudson, N. Y., Sept. 1.

H. C. NIVER.

I am not certain, but I think I read GLEANINGS from nearly if not quite at the start, as I had the old *American Bee Journal* when published by Samuel Wagner, Washington, D. C., and A. I. Root wrote for it under the name of "Novice"; and those pieces written by him were the first looked for. I have been a subscriber a large part of the time since GLEANINGS has been in existence, and have kept bees since June 22, 1856. I have 19 colonies at present, and have had Italian queens from different breeders. I introduced two queens this year from a breeder who advertised four and six banded bees; but the first queen produced very fine three-banded ones, and it is not quite time yet for eggs to hatch from the second one.

This section is not very much of a honey country; 80 to 90 lbs. is as much as I have ever taken in surplus of honey in any year. In all the 56 years I have kept bees, 500 lbs. is as much as I have taken in comb and extracted honey in any season from 12 to 15 colonies, spring count. I have always been able to sell all my honey at home, as people knew for quite a distance that they could nearly always find honey, either comb or extracted. I usually get from 20 to 25 cents per lb. for comb honey, and 20 for extracted honey put up in jelly-tumblers.

One thing more. I am a believer that queens mate two to five miles, quite often, from home, as no one less than five miles from my farm has ever introduced any Italian queens; and bees in three different yards, 1½ to 2½ miles apart have become mixed with Italian blood. If not from drones from my small apiary, how then?

GEORGE S. WHEELER.

New Ipswich, N. H., Sept. 25.

Our Homes

A. I. ROOT

Blessed are they which do hunger and thirst after righteousness, for they shall be filled.—MATT. 5:6.
And in his law doth he meditate day and night.
—PSALM 1:2.
Oh how I love thy law! it is my meditation all the day.—PSALM 119:97.

Dear friends, our Medina people have asked me to dictate a Home paper concerning the way in which GLEANINGS was started forty years ago, to go along with these letters of those who have taken GLEANINGS forty years or more, as given in this issue. May God help me to deserve better the many kind words that have come in these letters from so many of the old veterans. The names as I glance over them seem so familiar it is hard for me to realize that forty years have passed since I first became acquainted with the writers. I should like to send a kind message to each one personally if the space permitted.

I have before remarked, that all through my life I have greatly enjoyed the work of hunting up God's gifts; and I believe I speak truly when I say that I enjoy even more passing these gifts along to others. Some of you may think strange to notice the beautiful texts which I have chosen to head this short autobiography. Now, while I agree that the main purpose and meaning of these texts applies to spiritual things, yet I also feel that they may apply to our daily life, and to the industry in which we are engaged. If our industry and occupation are for the benefit of humanity, we are indirectly seeking the kingdom of God and his righteousness; and we have a right to appropriate these beautiful texts to the lives we are living and to the calling we are following.

I have told you in the preface to the A B C book how it was that my attention was first started toward bee culture. When my father moved on to the old farm in Medina County, when I was about twelve years old, I was much interested in gardening, especially in studying the catalogs and testing the new fruits, seeds, etc. Finally I subscribed for and read with great attention a little periodical called the *Northern Farmer*. It was edited by T. B. Miner. One of the writers in this issue refers to Miner and his book on bees. I think I got the book and was planning to get some bees; but for different reasons it was put off until some years after my marriage and I had a home of my own. The A B C book tells you briefly what happened at that time. After the truant swarm of bees was captured, and I had begun to make them my study, in my ignorance in regard to their management

they soon swarmed out; but my enthusiasm was so much aroused it was not to be stopped by this occurrence. I found a neighbor about half a mile away who consented to sell me an old box hive. With some ropes it was hung on a pole one night after dark, and a kind friend assisted me in carrying it about half a mile to my own home, where it was placed in the loft of the woodhouse. To make sure, I was up before daylight and watching to see the first bee make his appearance and start off. I rather think it took some calling to get me to come to breakfast, because I was anxious to see the first bee return with a load of pollen or honey. From that time forward bees were a craze with me. I was at the time a watchmaker and jeweler; but every old farmer who came into my place who knew any thing of bees or had ever kept bees was pumped until he was, I fear, sometimes glad to get away. I borrowed (and later subscribed for) about all the farm papers published at the time, in order to find out all I could about bees and bee culture. The *American Agriculturist*, by the Orange Judd Company, was then my particular reference. I made an early trip to the city of Cleveland, and carefully looked over all the books and every thing else they had in regard to bees. I think that it was exceedingly providential that I got hold of and chose "Langstroth on the Honeybee." I soon found that Langstroth was still alive, and through him got in touch with Samuel Wagner. I learned that the *American Bee Journal* that had been published for two years was stopped on account of the war. After some correspondence with friend Wagner I got him to recommence the publication, promising to write for it regularly. Several of the friends in the above letters allude to these letters written under the *nom de plume* "Novice."

In my search for knowledge in regard to bee culture I soon ran against certain patent-hive men. I visited A. J. King at his factory in Nevada, Ohio, and bought an individual right and took the agency for the American hive. When I afterward suggested to the *American Bee Journal* that King's American hive was an improvement on the Langstroth hive, my good friend Wagner took me to task, explaining why movable frames were better than frames at fixed distances.

Later on, under the signature of "Novice," I attacked various patent hives, showed up their defects, and why they were

greatly inferior to the Langstroth hive; and, among other things, I advised against the use of the American hive in place of Langstroth's. Mr. King at this time in his journal, *The Beekeepers' Magazine*, accused* me of "shooting poisoned arrows in the dark" because I didn't sign my full name, A. I. Root, to my communications.

I soon got track of Italian bees, and found the only queen that was to be purchased so late in the season (for it was then along in the fall) was one in the possession of L. L. Langstroth, for which he wanted \$20.00. I told you in my A B C book how I sent off my \$20.00 and watched anxiously for the bee. Of course I became the laughing-stock of friends and neighbors for paying \$20.00 for a single bug; but later on, when I secured a barrel of honey from one single colony of Italian bees in one summer, people who criticised concluded there must be method in my madness after all.

Of course, my success was written up in the *American Bee Journal* as well as in our Medina paper. Interest in bee culture started up there and then.

Let us take up my first text right here. While it can not be said that I was literally hungering and thirsting after righteousness, I was in reality hungering and thirsting to know more about bee culture. It was my study and my theme day and night. Not only were books and papers read, but an observatory hive was placed in the window where I slept, and I spent a great part of every night in watching them by lamplight. I saw the queen-cells built, saw the queen emerge from her cell, saw her take her wedding-flight, witnessed her return, with the evidence of impregnation, and none but those who have passed through a similar experience can realize with what joyous enthusiasm I verified the statements in the books. I began to get a library of all the books published that I could get hold of—not only standard works but those put out by patent-hive venders. I soon commenced the task of sifting the wheat from the chaff. I can not recollect now that I had any particular desire to benefit humanity, though I improved bee culture. This is true, however: I have all my life, I believe, been against any sort of work or system to defraud humanity, especially the honest till-

ers of the soil. When I saw what was being done in the way of patent hives, I proceeded to investigate and protect the honest people who had no money to spare where there was no need of sparing it. At the time the war broke out, I was manufacturing silver jewelry, and had quite a number of hands in my employ. I collected my agricultural books and papers and set a clerk to work to hunting up the addresses of as many people as she could find that were interested in bee culture. After having read of the German honey-extractor, and seeing a rude cut of one, I set about making one, and the barrel of honey that I secured from a single hive in a single season was by the use of this old metal honey-extractor. When I saw what the Italian bees might do I said, "Friends, the time is coming when honey will be on sale (like butter and eggs), not only at every corner grocery, but every day in the year." I have lived to see this almost verified; and with our new parcel post it may be more than verified.

It soon became necessary for me to have a printed list of the things in regard to bee culture that I had for sale, and new editions of this price list were needed so frequently that I finally decided, in order to save an endless correspondence, I would have to get out a quarterly bee journal. The first number was accordingly sent out to as many addresses as I could collect in the way which I have indicated. I believe it was also advertised in the *American Bee Journal*, the journal I had been writing for, for a year or more past. The price of the quarterly was to be 25 cts. per year; but it was almost immediately received with such enthusiasm that I changed it to a monthly at 75 cts. per year, almost before the second number. Since then the growth has been steadily upward. It is still growing now in its 41st year. I believe there has never been a time or a year in which the subscription for any one year was less than it had been for the year before. I visited Mr. Langstroth in those early days, and he paid frequent visits to our place in Medina; and many were the long talks and pleasant hours that we spent together.

Let me digress a little right here. My old mother used to make visits frequently at our home and look over my bee-books and the bees, and listen to my talks on bee culture. While she was not particularly interested in bee culture, she was always from first to last deeply interested and full of enthusiasm in seeking the kingdom of God and his righteousness.

Let me go back still further in my story. When I was two or three years old, and

*In later years this same Mr. King, overlooking or forgetting the past, possibly seeing that A. I. Root's judgment concerning the relative merits of the two kinds of hives was correct, wrote my father a very kind and appreciative letter. The verdict of later years was and has been, unquestionably, in favor of the Langstroth frame and hive, while the King hive and frame have been all but forgotten. The King frame was almost immovable after it was well glued up with propolis.—E. R. R.

my parents lived in the old log house out in the woods on the farm, one cold frosty morning, when there was a little snow on the ground, father and some of the neighbors were planning to brimstone a hive of bees to get the honey. I asked a number of questions that no one could answer, and my curiosity was so great that, although told I must not even look outdoors because I had been suffering from a severe cold, I finally escaped the attention of mother and the rest, pushed through the partly opened door, and got out into the crowd around the beehive before anybody noticed it. Child-like, I slipped down and got my hands in the snow. They took me indoors and warmed me before the open fireplace. Notwithstanding all their care, I contracted lung fever, which came so near taking my life that the doctors gave me up. My good mother didn't give me up, however, even if the doctors did. She kept on doing every thing she knew how, and praying that the little life might be spared. Some one inquired afterward what doctor it was that brought me out of that low spell. The Christian doctor, however, replied that no doctor did it; it was my praying mother who saved my life.

Now to go back. When my mother used to see me so engaged with my books on bees that I could not drop them, even day or night, she used to say something like this: "Amos, the time is coming when you will read your Bible with as much enthusiasm and interest as you are now reading these books on bees." I laughingly made some sort of reply; but later on, as these older readers of GLEANINGS will remember, I dragged my "religion into an industrial journal," as some expressed it. Some good business men and even church members smiled at my unusual proceeding. But I, believing that I was under the influence of the Holy Spirit, wisely kept quiet, and kept on in my course, as you will see if I relate one little incident.

A large business firm in the East made a mistake and sent me a consignment of goods which I didn't order, which would be rather expensive to return. After some correspondence I told them that, in order to save them expense, I would try to work off the goods. I did this by putting them on the fairground in the counter-store business that was my hobby for a time. When I informed them the goods were all sold, and enclosed check, there came a reply something like this: "Mr. Root, we will confess that we were prejudiced against you. We were told that you were a religious crank, and had the habit of mixing

religion and business. Now, if this is the way you propose to mix religion and business, bring it along; the more of it the better; it is *exactly* what the world is suffering for."

One reason why GLEANINGS has prospered is, I think, that it has always set its face so determinedly against selling secrets and frauds. I have been all my life more or less in touch with the experiment stations, not only in Ohio, but others, and they have repeatedly said that no good thing ever came to science or art or industries through a secret sold for a certain sum of money. Our Ohio experiment station is very decided in regard to this point. Yet at the present time we are told by the papers that millions of hard-earned money have been going and are going constantly to fakers who make it their business to rob people of their hard-earned money, especially sick people. Now, GLEANINGS has from first to last endeavored to protect people from frauds of this sort. Any advertisement that is sent in of this kind, it has been my custom for years to ask for sample of what they had to sell for a certain sum of money. Many refuse to do this, thinking it is, perhaps, none of our business.

In order to succeed in any business at this present day and stage of the world's industry, it is almost a necessity that you be "hungering and thirsting" for every thing that is to be known about the business you are engaged in. Better still—yes, ever so much better—you should be hungering and thirsting after *righteousness*. I believe one of the hopeful things that we can thank God for at the present time is that the whole wide world is more and more hungering and thirsting after righteousness instead of hungering and thirsting for opportunities to get a hand into some other man's pocket without his knowing it. The most pressing need of the present day and age of the world is for men for important offices who are hungering and thirsting after righteousness, instead of hungering and thirsting for an opportunity of defrauding the people whom they have sworn to protect.

It is true that, during the past forty years, there have been various jangles and disagreements and difference of opinion; but, may the Lord be praised, they have been finally settled, almost without exception, in a peaceable and amicable manner.

The fashion of filling the pages of a bee journal with accounts of quarrels and disputes, instead of having the pages devoted to the dissemination of useful and helpful knowledge, has, for the most part, passed

by, and I thank God for it. Editors of bee journals of the present day seem to be on most friendly terms, and ready to lend a helping hand whenever it may be required. It has been frequently remarked, and I believe truly, that the beekeepers of our land occupy a higher standard of morals than those engaged in almost any other occupation.

•THE AMERICAN TOBACCO CO. AND THE CRUSADE AGAINST INTRODUCING CIGARETTES INTO CHINA.

We clip the following from the *Union Signal*. It is a letter from Mrs. Chauncey Goodrich, President of the China W. C. T. U.:

Up to the year 1900 many men and women were given to smoking tobacco, though as the bowl of the ordinary pipe in use was so very small the evil effect was slight; but since 1900 tobacco companies have awakened to the idea that China is an excellent field for the sale of cigarettes, and have left no stone unturned to introduce them into the country. Their agents have gone into the most remote places of the most distant provinces, as well as those provinces bordering on the coast. The walls of cities, villages, and even hamlets are covered with large flaming posters telling of the great value of the cigarette in *banishing fatigue*, awakening an appetite, and also relieving phlegm gathering in the throat in the morning—thus making one feel generally happy and able to accomplish more work. Pictures of women are, in some cases, placed in the boxes, while at each stand where cigarettes are sold, large pictures are on view. To introduce the cigarette, officials and others have been presented freely with large boxes of them, and in some cities small boxes have been thrown in at every gateway or store with the hope of creating the habit. The finest printing-press in Shanghai is owned by the American and English Tobacco Company, which last year employed 125 European salesmen, besides countless Chinese. The ease with which the cigarette is carried and smoked has increased its use so greatly that one now sees men, women, and even little children under five, yes, even three years of age, smoking them, and the shaking hand and trembling jaw of the cigarette smoker are very common among young people. This use of the cigarette is day by day undermining the health, affecting the brain, and blighting the morals of the Chinese. The tendency to tubercular trouble, which has carried off more of our brightest pupils in mission schools than has any other disease, makes the frequent use of the cigarette unusually perilous in China. It is with real pain one sees this evil thing taking the place of food in the families of large numbers of working people who can ill afford to forego nourishment. No small effort has been made to inform the people of the extreme harmfulness of the cigarette, and to unite them in a crusade against it. This has been very effective in certain places, notably Foo Chow, where it is said cigarettes have been largely driven from the city. In Peking we have posted on the city walls large posters, 3000 in all, dealing with the nature of nicotine, the effects resulting from its use, and stating what steps different nationalities are taking to prevent the formation of the habit among minors. These posters were prepared on behalf of the W. C. T. U., but the Tract Society printed them and created a sale

for them in many provinces, and also for a folder in different form. More than 30,000 of each were sold or given away in one year. In one city in Shansi, the official thanked the missionary who had the posters placed on the city walls, saying foreigners were too often ready merely to profit from the Chinese, and that they greatly appreciate, therefore, the efforts of those who are seeking to prevent injury to them.

To the above the *Signal* adds:

Friends, does not God call us to be more courageous, to fight—yes, fight—against these gigantic evils of our race and every race that are unfitting men and women to become in body, mind, and soul that which God meant them to become?

LIQUOR, SNAKES, REVOLVERS.

Snakes, intoxicating liquors, and revolvers can not be sent by parcel post. Significant, isn't it? What a combination! How appropriate! The prohibited articles are much alike. Any kind of snake causes the average person to shudder. Few persons want any thing to do with snakes, dead or alive, real or imaginary. There is an affinity between snakes and liquor; and then add revolvers and you have a harmonious trio. Liquor calls for revolvers, and liquor produces snakes. Revolvers, snakes, liquor—these three—but the greatest agency for evil is liquor. Uncle Sam knew his business when he grouped these agencies and forbade them the use of the parcel post.

We clip the above from the *American Issue*, and breathe a hearty amen to every word of it, and also thank God that "Uncle Sam" is, to some extent, waking up.

"UNCLE SAM IS OUR PARTNER."

A circular issued by a mail-order liquor firm bearing the words "Uncle Sam is Our Partner" was displayed in the Senate chamber one day last week by Senator Kenyon as an illustration of the extent to which, he said, the United States was taking part in the violation of local prohibition laws in "dry" States. Congress adjourned, however, without passing the Kenyon-Sheppard bill to prevent the lawless importation of liquor into dry territory. The liquor forces have all along declared that the bill shall not pass. It remains to be seen. If the allied forces of greed and illicit gain and anarchy and beastliness can stand up and defeat law and order and humanity and home, and morals and truth and goodness, and good men and good women and God, they can not continue to do it indefinitely. It is a fallacy and enormity to try to uphold and bulwark the murderous liquor traffic by the approval and sanction of the Government. Every righteous heart knows that it is wrong in the sight of God. A thing that is morally wrong, and that is actual anarchy under the laws of many of our States, can not be made any thing else than an infamy by all the contortions of all the constitutional lawyers, nor by all the threats and bribes of liquor-dealers who wish to have it made legal for them to commit crime.—*Herald and Presbyterian*.

The A. I. Root Co.:—

I have just received the book which I ordered from you, "Wax Craft," and have had time to read only a few chapters in it; but I think it will be very helpful to me. I received the A B C of Bee Culture and The Honeybee, by Langstroth and Dadant, all of which I received several days ago, and in connection with my observations I have read them all. I find that they are splendid studies, even for the man with a small apiary. I am a young man, and these books have opened up a new world to me.

Parkersburg, W. Va., Sept. 18. J. L. VINSON.

Cleanings in Bee Culture

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NO. 4

Editorial

DEATH OF D. H. COGGSHALL.

WE were pained to learn that our old friend and valued contributor, D. H. Coggs-hall, dropped dead the 18th of January while waiting for the train. He was just starting to spend the winter in Florida, as has been his custom for several years. Details will be given later.

DEATH OF GRANDMOTHER WILSON.

OUR readers will remember how, two years ago, on page 659, we showed a picture of Grandmother Wilson in Dr. Miller's family, who had been making honey one of her chief articles of diet for many years, and who, at the age of 93, seemed to be strong in body and mind. We have been in Dr. Miller's home, and have seen this remarkable old lady whose life was indeed sunshine filled with the love of God and the hope of the beautiful hereafter. Dr. Miller thus speaks of her death:

Dear Ernest:—You will recall Grandmother Wilson sitting in her window amid the sunshine and flowers. The sunshine and flowers are still there, but the brightness of her presence is gone. January 24, when within 22 days of being 94 years old, she very suddenly breathed her last without a struggle, at 10 P. M., having retired at her usual bedtime, without having been confined to her bed for a day. I had not realized how empty the house would seem without her.—C. C. M.

HAY OR STRAW FOR PACKING FRAGILE ARTICLES LIKE SECTION HONEY.

ONE of our correspondents, in the Heads of Grain department, Mr. E. F. Robinson, of Canada, makes the statement that "straw once flattened remains so, to a certain extent. . . . I always use hay, as it is much more resilient than straw." This is interesting and valuable if true, and we are inclined to think it is true or our correspondent would not say so. Straw, however, is a commodity that can be found in all of the eastern States and many of the western, while timothy hay, the kind referred to, will be found mainly in the northern and eastern States, and a few States east and north of the Mississippi. If hay is more resilient

than straw, let us by all means use it in our comb-honey carriers and in our packing-boxes. The matter is well worth investigation on the part of our comb-honey shippers.

DANGER FROM COLD IN FEBRUARY.

FROM all parts of the country came reports of warm weather in January. In some localities, even in those where flying days in January are usually very infrequent, the bees were able to get pollen, so that brood-rearing was started in earnest. All this means that there is danger of a considerable amount of brood being chilled during this cold weather in February which seems to be quite general.

Another bad feature resulting from excessive brood-rearing in January is that many colonies will run short of stores; whereas if the weather had been cold enough to prevent brood-rearing until later on they would have had plenty.

THE OHIO STATE BEEKEEPERS' CONVENTION.

THIS convention was held at Columbus in one of the recitation halls of the State University, a little way out of the city. There were present Mr. C. P. Dadant, of the *American Bee Journal*; Mr. E. B. Tyrell, of the *Beekeepers' Review*, and Secretary of the National Beekeepers' Association; also Professor W. A. Matheny, of the State University at Athens; and Professor J. S. Hine, of the State University, Columbus. In this connection it is proper to remark that both universities have already installed (or are about to do so) lectures and brief courses in apiculture under the charge of the professors mentioned.

The first session of the convention was quite well attended, made up of beekeepers from various parts of the State, and students in the agricultural department of the college, particularly those who are interested in bee culture. Of course we had with us the Secretary, Prof. N. E. Shaw, Foul-

brood Inspector and State Entomologist in the Department of Agriculture, and his deputy inspector, Mr. Morris, who is also President of the Association. Space will not permit us to give a report at this time.

PARCEL POST FOR BEESWAX.

A FEW days ago a beekeeper sent us five or six pounds of wax by parcel post. The wrapping consisted only of paper and strings; and when the parcel reached us, the wrapping was nearly gone, and the strings just barely held together the cakes of wax. There is no reason why beeswax can not be sent by parcel post provided it is put in a strong burlap sack. The ordinary paper wrapping is insufficient to stand the rough handling by mail. In fact, we may say that beeswax in small quantities should never be sent in any thing less secure than a wooden box or a good strong sack. Paper wrapping, even by express, has been broken too many times to warrant the risk by either express or mail in a paper wrapping.

THE CALIFORNIA WINTER FREEZE AND ITS EFFECT ON THE MOUNTAIN-SAGE CROP.

MR. R. M. SPENCER, of the R. M. Spencer Apiaries Co., of Nordhoff, Cal., writes that the freeze in that State will cut the sage-honey crop more than half. What is true of sage is also true of the sumac, which they get in July. Besides the freeze, they report that they have had no rain up to Jan. 14; and he therefore thinks that California will not do much this year in the way of furnishing sage honey. This is regrettable, as the mountain sage is getting to be a very popular and good-selling honey.

Later:—Almost in the same mail comes another letter, dated Jan. 17, from Mr. Allen Jenkins, of Westgate, Cal., who says they are having copious rains, and everybody is rejoicing. As this is three days later than the letter from Mr. Spencer, we are in hopes that the needed rain has come in his locality as well. See also Mr. Chadwick's statement in his department.

GOOD BEE LOCATIONS IN OKLAHOMA AND KANSAS.

In an early issue we shall give an account of our trip to Oklahoma and Kansas, and something concerning their great possibilities in the line of beekeeping. Alfalfa is being grown very largely in those two States. Strange to relate, bees and beekeepers have not followed in its wake; yet alfalfa in Kansas and Oklahoma yields honey—not so bountifully, of course, as in

the irrigated regions, but enough so that beekeeping can be made a very profitable industry—especially so as the country is not overstocked. The beeyards will necessarily have to be small, and within short distances of the rivers or creeks and valleys. In Oklahoma, cotton is yielding at present a large amount of honey. The climate of both States is delightful—particularly that of Oklahoma. We do not wonder that there is a great rush of eastern people into the State. There are, of course, “suckers” and fakirs by the thousand. But the State is full of honest men; and if one will keep his eyes and ears open he can learn the truth. Right here let us say that some of the land in both States is comparatively poor, because it is away from water or too near the rock; but in the valleys and along the course of creeks and rivers there are many fine farms, and also some excellent bee country. More anon.

FOUND PACKAGES OF BEES NOT ADMITTED TO THE PARCEL-POST PRIVILEGE.

In this issue, in the Heads of Grain department, page 131, a correspondent asks if bees without combs can be sent by parcel post. In our reply we have explained that this can not be done, and why. The reason we make mention of it here is to make sure that no one make the attempt to send a pound or two of bees by mail with the same result that happened 35 years ago, when even queen-bees and their attendants were barred from the mails. While the local postmaster would refuse to accept such a package, he *might* let it go through, with the result that we might have serious trouble on our hands. The Postmaster-general, or, rather, the Third Assistant, has more authority than any Representative or Senator, in that he can put a ruling into effect that might make or unmake the entire queen business in the United States. Let us proceed cautiously; and when we have perfected a combless cage by which we can send bees by the half-pound, pound, or two or three pounds by express, we shall then be in better shape to go before the Department and ask for a ruling than we now are.

Later:—The expected has happened. Bees sent by parcel post in a poorly-made cage “broke loose.” Particulars in next issue.

REPORT OF APIARY INSPECTOR OF TENNESSEE.

In the eighth annual report of the Tennessee State Board of Entomology, Dr. J. S. Ward, newly appointed as State Inspector of Apiaries, gives a good report of the first six months of his commission. The month of June was spent in inspecting in

Davidson, Maury, and Rutherford counties, only one yard being found infected, and this was treated.

The Tennessee agricultural train started on its tour over the State July 1, and on July 4 Dr. Ward was instructed to join the train with an exhibit which he had hastily prepared, consisting of an observatory hive, supplies, various races of bees, etc. The bees actually working proved one of the most attractive exhibits of the train. Demonstrations and instructions in beekeeping were given at every stop, and a hundred open-air lectures were given besides.

The inspector has found some trouble in getting reports of disease, due to a possible fear on the part of the owners that the colonies may be destroyed, or because of discouragement or indifference.

The work for the winter includes a continuation of the illustrated lectures and demonstrations in the field, and an energetic campaign is to be carried on for the purpose of getting statistics in regard to bees which will include the name and address of the owner, the number of colonies, source of honey, whether comb or extracted or bulk comb honey is produced, average yield per colony, diseases, etc.

OUR APICULTURAL SCHOOLS: ARE THEY MAKING MORE COMPETITIVE PRODUCERS RATHER THAN HELPING THOSE ALREADY IN THE FIELD?

THE initial article in this issue, under the heading of General Correspondence, by Mr. J. L. Byer, discusses the question whether the apicultural school at Guelph is not making a mistake by making more beginners when it should rather take those we have and make better ones of them.

Mr. Byer and Mr. Holtermann, as well as the editor of the *Canadian Bee Journal*, apparently feel that these new recruits do not fully understand the difficulties that confront the beekeeping industry of the day. From their point of view these beginners go into beekeeping, run up against foul brood, then go out of the business, leaving the industry in a worse condition than before.

Let us assume for argument's sake that the apicultural schools at some of our agricultural colleges are making recruits rather than instructing the beekeepers already in the field. We have visited practically all such schools in the United States and Canada; and the brood diseases, or any other bee disease, so far as we have been able to see, has been properly presented to the students. Not only that, but the schools have taken pains to point out fairly and candidly some of the difficulties, so that the novice,

when he takes up beekeeping, will be informed in advance of the problems that he will have to solve. The student comes in actual contact with an instructor who thoroughly understands the business. In many cases they have access to a full equipment. The practical management of bees is fully explained so that the novice or old timer can go out into the world, learn how to handle them, and then go into the business with a better knowledge of when and how to proceed. Such a beginner, ninety-nine times out of a hundred, will be more careful about letting bee disease get into his apiary than the average "old-timer" who does not fear foul brood, and who feels that he can cure it when it does come. It is a lamentable fact that many of the professional beekeepers either do not care if they get disease or do not understand; and if our agricultural colleges did nothing more than to stir up these men to the real danger that lies before the practical honey-producer, they will have served their purpose. They are doing this very thing.

But, as Mr. Pettit points out in his reply to Mr. Byer, his agricultural school is composed largely of students *who are already in the business*, to the extent of nineteen out of twenty. What is true of the school at Guelph, Canada, is to a great extent true of similar schools in the United States. Having visited all of them, and having seen the class of work that they are doing, we are convinced that they are putting the industry as a whole on a safe and sane basis.

It is exceedingly difficult to get an appropriation in the first place sufficient to carry on apicultural schools with a competent man or men in charge; and we can not but regard it as unfortunate that criticism of this sort should arise at this time; for if there is any institution that is protecting the beekeeping industry, outside of our books and journals and our foul-brood inspectors, it is our apicultural schools. The more of them the better. We believe we have traveled over more bee territory in the United States than perhaps any other person in this country. We have just finished a trip of 2500 miles visiting beekeepers and two institutions where bee culture is being taught. Careful examination of all the facts in the various localities convinces us that we have *ten times as much to fear* from the inroads of foul brood and price-cutting from the don't-read-the-journals class of beekeepers as from any other class we have to deal with. Those who do not read a bee journal probably do not read even agricultural papers, and much less are they in touch with our apicultural schools.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

THAT symposium of 40 years ago, p. 97, takes you back, doesn't it? If those 50 or more young fellows could meet now, what an interesting convention they could hold! I'd like to be there to hear them.

OH YES! Alfred J. Fisher, p. 100, there can be abundant crops of white clover without sheep. It is my chief dependence as a honey crop, and I don't know of a sheep within three miles. For best results white clover must be grazed to make its season longer; but I don't know that it makes any difference whether it is grazed by sheep, cows, or some other stock.

THIS kink is from Arthur C. Miller: "Wrap a queen-cell in a piece of thin foundation, bringing it snug to the cell near the tip (which just protrudes), pinching the foundation together over the cell-base, when the cell will be safe from attack, no matter what colony you give it to." Handy in case a cell has been injured, or where a colony is not yet fully conscious of its queenlessness.

THE windbreak question is well discussed, p. 38 and p. 55, and that reminds me. Years ago my apiary was surrounded by growing corn and dense shrubbery. In the center of the apiary, combs melted down and the honey ran on the ground. It was not caused by the direct rays of the sun, for the sun never shone on the hives all day long. It was because the dense growth prevented the circulation of the air. If that kept the hives warm in summer, why should it not have the same effect in winter?

MR. EDITOR, I have a large stock of ignorance about outdoor wintering. So I may repeat, in all good faith, the question I asked on page 74, whether you ever saw a solid comb of honey projecting down through the cluster of bees in winter, applying it to bees wintered outdoors. Reasoning upon the case I should say that the same rule would hold outdoors as in cellar; and so while empty combs would be found below the cluster, the bees would never allow honey below the cluster. But reasoning is not always safe, and I may be utterly wrong. Can we have a positive statement of fact? How is it at Medina, and where J. L. Byer lives? [We can not answer your question directly, but we do know this: In early winter, when a cold snap comes on, and after the bees have been fed up so that their combs are well filled except the winter nest, you will very often find the cluster clear up to the top of the brood-frames and over

them. An examination shows that the bees are above the honey, because we can look under the cluster when the sunlight is right. Yes, sir, 'e; we feel very sure we have had many cases like this where the combs of honey project below the cluster. It could not be otherwise, or else the cluster would not be at the top. Now for your side of the proposition, we may say the *normal* position of the cluster is down near the bottom-bars next to the entrance, with the honey above.—ED.]

LOCK-CORNERING of hives, or dovetailing, mentioned p. 91 as one of the improvements of the past 40 years, recalls the prophecies that were made upon its introduction that it would be an utter failure. Hives with that feature could not last; the corners would pull apart; the moisture would work in, rotting the wood, etc. But the hives didn't seem to mind the criticism, and to-day not many would want hives without the condemned feature. [Yes, we remember very well the prediction, and how we were scored for putting out the lock-cornered hive 25 years ago; but they were never more popular than now. All the manufacturers in the country have adopted the principle. It was a case where theory did not "dovetail" with actual practice, because the "dovetailing" actually held. We have now in use hives that were never painted, and which are still good for 25 years' use so far as the dovetailing or lock-cornering is concerned.—ED.]

ARTHUR C. MILLER says, p. 81, "Another word about soft sugar and I am done—no, not out of sputter, but just holding up for a future time." That recalls a story of another individual who was "not out of sputter," but who was short on another commodity, and who was "just holding up for" a fresh supply:

A wide-awake five-year-old had been giving his mother all sorts of trouble one day when she had company. Finally she shut him up in a closet. His screams could be heard a mile or less. Suddenly they ceased, and there was a dead calm. His mother waited in vain to hear him say, "Mama, I'll be good." Visions of her darling, dead from suffocation, floated before her, and she opened the door, only to find him calmly seated on the floor. "What are you doing, my son?" "Nothing. I spit on your new hat; I spit on your new coat; I spit on your new dress; and I'm just waiting for more spit."

SIFTINGS

J. E. CRANE, Middlebury, Vt.

On page 755, Dec. 1, Dr. Miller and the editor discuss shipping cases somewhat, and tell how to ship safely. I want to add that it requires much more careful packing to ship honey safely in late autumn and early winter than in warm summer weather.

* * *

"He was an honest man and a good citizen" is said of J. S. Harbison, page 679, Nov. 1. Why? Because he believed in the fatherhood of God and the brotherhood of man, and he has left to the world what is worth more than heaps of gold and silver.

* * *

"Darn a veil, anyhow!" says Arthur C. Miller, page 809. Thank you. That is about the way I feel. I have submitted to hundreds of stings rather than wear a veil. To have that veil everlastingly between your mouth and a nice tidbit of honey as you open a hive, or a fat strawberry, or a plum, or a cluster of grapes, is provoking. But if you must wear one, there is nothing better than the one Mr. Miller describes.

* * *

I am glad Dr. Miller is going to try extracting honey, page 790, Dec. 15, with part of his bees. There are several advantages in doing so. There is lots to learn, and then you will find some customers who will pay a good price for it just because *you* produced it. And, again, your supply of wax to be worked into foundation will be largely increased. We have between two and three hundred pounds on hand ready to send away to be made into foundation. That makes quite a saving in supplies for the summer of 1913.

* * *

In the discussion of flowers Mr. Ryan and Lovell agree on one thing: "that the poppy contains no nectar." Shall we ask why? While in the southern part of the State last summer a gardener showed me a long bed of poppies, and said that bees worked freely on them in the forenoon, but that large numbers of the bees were so overcome by the narcotic element of the plant that it would be hours before they would all be able to return to their hives. Now, we know that honey often, if not always, partakes more or less of the nature of the plant from which it is gathered. Thus the honey from the thoroughwort is quite bitter. That from the white daisy tastes as the flowers smell; and may we not readily conclude that, had the poppy produced honey, it would have contained so much of the

powerful narcotic principle of these plants as to be destructive to bees where it grows freely in the grain-fields, as in many places in Europe? How kind of the Author of nature to withhold nectar from the poppies, and give instead a good supply of pollen!

* * *

A SUMMARY ON WINTERING.

The subject of wintering bees in the colder parts of the country is not as well understood as it should be. I wonder if I can sift out some of the main facts so a child can understand them.

If the bees of a given colony have good stores of honey or sugar syrup there are just two other facts to be remembered—*protection from cold, and dampness.*

Why should they be protected from cold? 1. Because they consume very much less honey, often not more than one-half; 2. Because, if they consume less honey, and have less cold to overcome, they will live much longer, and will be stronger in the spring; 3. Because, if less honey is consumed, less moisture will be generated by the bees, to be gotten rid of in some way.

How can bees be protected from the cold? By placing them in cellars or special repositories, or by protecting them out of doors in clamps or by warm packing.

Why should bees be kept dry? 1. Because if the inside of a hive is damp, the combs and especially the pollen in the combs will mold; 2. Because, if left where it is very cold, the moisture may condense and freeze on the combs so as to starve the bees when there is plenty of honey in their hives; 3. Because, if moisture is allowed to accumulate inside a hive it is likely to be condensed on the combs, and to be absorbed by the honey, making it unfit food for bees, and often producing disease.

How can this moisture be disposed of, and the hives and combs kept dry?

By giving a large lower entrance as advised by Arthur C. Miller, Allen Latham, and others. By giving a smaller lower entrance and some upward ventilation, thus producing a draft through the hive, and carrying off the moisture given off by the bees. By a very small lower entrance and warm packing, and absorbing material around and above the bees that allows the moisture to pass through while it retains the heat.

Perhaps I should add to this that bees in cellars or special repositories should be kept at such a temperature that they will remain in a semi-torpid condition.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Mr. A. B. Marchant, Jan. 15, p. 45, gives some splendid thoughts on knowing one's location. Beekeepers could, to a very great extent, profit by studying their location and its resources.

* * *

Mr. Geo. L. Emerson reports bees wintering poorly in the vicinity of Fullerton. In this locality they are in better condition than for the past two seasons; but what later developments will bring, owing to the freeze, is hard to tell.

* * *

I miss the writings of E. M. Gibson, of Jamul, Cal. Mr. Gibson writes me that he has sold out and is living in San Diego. There are others who might take his place, and help keep California in the rank it deserves before the beekeeper's world.

* * *

Referring to what you say, Dr. Miller, p. 40, Jan. 15, I am contending that bees lose time guarding the entrance when there is a good honey-flow on. At such a time you could take the lid off and leave it so for a week without doing any harm. The original discussion was over a colony that built up very rapidly in the spring with a very large entrance.

* * *

Almost immediately following the freeze we were treated to a fine rain. In some localities the downpour was heavy, and more than three inches fell—the heaviest being in the vicinity of Santa Barbara and Ventura. In this locality we received only one and one-fourth inches. However, it is sufficient to start the early spring flowers that give us an abundance of early pollen.

* * *

The first of the year I started to keep a record of the number of days during the year when the bees were able to find something to work on. By the end of the first week every thing was so badly frozen that I gave it up. The twenty colonies in my back yard have found pollen somewhere every day they could fly; but where they found it since the freeze I have not been able to learn.

* * *

Conditions are somewhat uncertain as to the damage to our honey-plants; but developments have reached a point where I feel safe in making some statements. The orange trees are frozen very badly in places, while in more favored localities the damage is much less. Where the trees are the worst frosted, the bloom will be materially de-

creased; but in the more favored places there seems to be no reason why there should be any shortage in bloom. If, perchance, the bloom should be reduced one-half, there would still be all our bees could handle. Some believe the button sage is killed. I did not share this opinion for a time; but after carefully examining it in several localities it seems almost certain that much of it is entirely destroyed so far as this year's bloom is concerned, though I believe we may see some bloom if we are favored with good rains from now on. The white variety is not injured, it being of a much more hardy type. It stands the cold of an altitude of more than six thousand feet. The eucalyptus, which is of so much value as a winter stimulant, is very badly frozen, and much of it will die. The peppers, grevalias, and acacias—in fact, every thing, is frozen; but the oranges seem at this date to have stood it better than most other trees.

* * *

A COLLAPSIBLE VEIL MOST DESIRABLE.

On page 810, Dec. 15, A. C. Miller discusses bee-veils at length, and finally decides on one that would not appeal to me for a minute. I would rather have one I can stick into my pocket, so I will not look like an old maid with a bird-cage, when going from place to place. Silk bobinet veiling, with the lower skirt of cheesecloth, makes a dandy. Put a shirr-string in the top to draw it around the hat crown; bring the skirt down on the shoulders, the slack around in front; then tuck it in your shirt-front. I have worked many a day in this way, and did not get stung. It would be torture to work all day with a coat on, such as is shown in the illustration. Mr. Miller also says, "But you will have a more pleasant time if you keep decent, good-natured bees, and dispense with a veil altogether, or almost." That was my idea when I came to California. I laughed at my uncle for wearing a veil so much; but he said, "Never mind; you will come to it." We started extracting. I was uncapping and throwing out, he taking off and wheeling in. Near 3 P. M. the old gentleman was getting tired, so I offered to change with him, which I did. Wheelbarrow and smoker in hand, I rushed out, and very promptly I rushed back, perfectly in love with a veil, and have been ever since. I do not care how gentle bees are, when you get them stirred up with good lively extracting operations there is going to be a good demand for a veil.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

RESULTS OF GOOD CROPS.

We are all acquainted with the results that follow the making of goods and profitable crops. We all know what an "invigorating" effect it has on us, how it livens us up, and spurs us on to do better things, and to greater interest in those things that concern us in our chosen pursuit.

These things are mentioned for the reason that the writer is looking forward to the time when beekeepers will get together more often, and take into consideration some of the most important matters that need immediate attention. It has been, and is yet, a hard matter to do very much in this direction during years that have not been profitable to the beekeeper. In the first place he has lost much of the interest in the business; and even if he has not, the fact of his being rather short of pocket money as a rule does not permit his going to any meetings that may be held to discuss these important matters. How different it is, though, when he can jingle the bright coin with which his pockets are heavy!

FAVORABLE PROSPECTS.

Although some portions of the great Lone Star State suffered somewhat severely the past season, other parts of it obtained very fair crops of honey, especially throughout the cotton belt. There was considerable cotton honey produced during the 1912 honey season, and this helped materially in bettering the final crop report for one of the poorest seasons that we have experienced for many years, taking the entire State as a whole.

It is gratifying indeed, however, that the bees are, almost universally, in excellent condition for next season, and wintering so well that they will be in fine order generally for the next season. Adding to these excellent conditions the prospects for a good honey season this year, the beekeepers are expecting some big harvests to make up for the losses, in some localities, the past two seasons.

The late fall and winter months have been bountiful in good soaking rains, and these have been pretty general all over this large State. This, followed by an early spring and a dry summer, interspersed with a few good rains, is what the beekeeper terms "a good thing for a big honey yield." Just how near we shall get to these ideal conditions, it is too early to tell now; but it is to be hoped that the present excellent conditions will continue and even improve. One of those "bumper crops" we used to

speak of in years gone by would put new life into the beekeepers; and such new life would show its effect in many ways, with the result that more interest would be taken to make beekeeping better than it has been the last few years.

* * *

BEE INSPECTION IMPORTANT.

One important matter concerning the beekeepers, not only of Texas, but all States and countries, is that of careful, systematic, and effective inspection of apiaries for diseases of bees. The time has come when we must be exceedingly careful about such a thing as running the risk of getting foul brood or any other contagious diseases into our apiaries. In this case an ounce of prevention is better than a pound of cure.

The next question then is, how we can best arrive at methods and means for taking the proper steps to accomplish results that will give us proper protection.

Just such questions as this should be taken up at various gatherings of beekeepers all over Texas at the present moment. And not only is this of exceeding importance in localities where bee diseases already exist, but just as important where they are not already present. The one idea in the mind of every beekeeper should be to keep it away, and not wait until it has appeared in the neighborhood. We shall not attempt to say how far away we should keep it; but every beekeeper knows that the further such dangerous diseases are kept away the better.

It is hoped, therefore, that the beekeepers in every State will get together and consider what may best be done to evade any of these dreaded troubles altogether, or to get rid of them after they have come into a neighborhood.

It should be remembered that Texas has a State foul-brood inspector in the person of the State Entomologist, at College Station. There is no doubt about his doing what is proper in dealing with such matters, and looking after the welfare of the beekeepers of Texas. But it should be also remembered that it is up to the beekeepers to lend him all the assistance in their power, and to aid in procuring the necessary funds with which the work is to be done. And it is also the duty of beekeepers of this State to see whether or not these duties are performed properly and to the best advantage for the beekeepers. They have a right to expect this in return for the efforts that may be made by them.

Conversations with Doolittle

At Borodino, New York.

LOOK AFTER THE COMBS.

"Last fall I had many colonies weak in bees, so I doubled them up until I thought all were strong enough for winter. How can I best preserve these combs till I wish them for use again? Would new comb be preferable to the old, no matter how good and straight the old combs are?"

It is best to keep a careful lookout for every bit of wax in the shape of burr-combs and brace-combs, and all scrapings of honey-boards, frames, and hives. All combs which are crooked, or which have been damaged through breakage or from mice, should be rendered into wax. When saving out these pieces, it should be borne in mind that the *choice* comb is so valuable that its destruction shouldn't be entered upon hastily.

In order to determine the worth of nice straight worker combs, it is well to remember that many experienced beekeepers think it very profitable to purchase full sheets of comb foundation at the rate of ten cents per frame. This, added to the cost of transportation, and the time required to wire and fasten the foundation in the frames, would make the cost of a frame filled at least 13 cents. The same frame filled with a good worker comb is certainly worth as much, and in my opinion more. The wax that can be gotten from it would hardly bring 6 cents, and this must still be discounted on account of the labor involved by way of rendering and cleaning the wax. My conclusion is that combs in an eight-frame Langstroth hive are worth at least 50 cents more for use as combs than they are for the purpose of wax. To my mind it is worth while to know (when one has frames of nice worker comb which can not presently be made use of by the bees) how to keep them in a good state of preservation. Mice and the larvæ of the wax-moth are the enemies that work the most destruction where the combs are kept in a warm dry place; and if kept cold and damp, the mold and soured pollen come in as deteriorating influences. To guard against the deterioration or destruction of combs, I have experimented quite largely, and recommend the following:

If one has a bee-cellar that is mouse-proof, and cool and dry, the hives of comb can be set therein with every assurance that they will keep well. But any warm damp cellar is to be avoided, lest the combs become moldy with soured pollen. It appears that a somewhat high temperature is necessary for the propagation of wax-moths, for I have never known them to breed in

combs placed in a cellar that is fit for them to occupy; and therefore I feel it safe to say that any good cool dry cellar would be a sure protection against the moths; and if such a cellar is not already mouse-proof it can be made so without any great amount of work. By placing hives of combs over strong colonies of bees as soon as the warm season opens, so that the bees can have free access to them, neither mice nor moths will be able to touch them. From one to six hives of empty combs can be given to good colonies. Precaution only need be taken that no more hives be given than the bees will go through in sufficient number to go over all the combs. When any one can use strong colonies for this purpose, it is the safest and best method; for the bees not only protect the combs completely, but also clean them to a very great extent, so that they are put in better condition for preservation by other methods. It is not practical to store combs over colonies when working for comb honey. In such a case the combs would have to be removed at the beginning of the honey-flow, else no good section honey could be obtained. But where working for extracted honey, they can be used, or the filled or partly filled combs reserved for feeding purposes for either fall or spring.

But the way I have used the most of them, and which has pleased me the best, and a way which has proven entirely effective against the moths, is to hang my combs up to the light and air with a space of from 1½ to 2 inches between each comb and its neighbor. Especially is this the best way for all combs which have had brood reared in them till they have become toughened by the cocoons accumulating from many generations of brood. Such combs are most freely used by the moths. If the combs are new, and of clean white wax, the light seems to have a deteriorating effect upon them, causing them to become brittle, and to break or crumble when handled, though the bees seem to use them as well as ever during hot weather. Knowing how well combs keep when stored in this way, and for practical convenience in following this plan, racks to support them were made in my shop overhead. These were placed so as to admit freely the top-bars of my frames. Windows were placed conveniently for light and air; and by using screens, neither bees nor millers could have access to these combs. These racks, being so far from the floor or any other accessible place for mice, afford an ideal place for keeping all combs not in use.

General Correspondence

SHALL WE ENCOURAGE MORE TO KEEP BEES?
OR SHALL WE RENDER MORE HELP TO
THOSE ALREADY IN THE BUSINESS?

BY J. L. BYER

The December issue of the *Canadian Bee Journal* reprints an article contributed to the *Farmer's Advocate* by our well-known friend R. F. Holtermann. The editor of the latter paper asked for a summary of the prospects of beekeeping in Canada, and the article in question deals largely with that phase of the industry; and while the views expressed may not be in harmony with the ideas of all others engaged in the business, they are, nevertheless, very interesting, and worthy of our sincere consideration. After commenting on the fact that European and American foul brood are a serious menace to successful beekeeping, he says, "Just now, it seems to me, to advise men either in Ontario or Quebec to go into beekeeping is like advising a man to go into hog-production with an outbreak of hog cholera in the vicinity, only far worse." Referring to the claim that these diseases are not checked more effectually than is the case, because of lack of funds from the Province to fight them properly, he further says: "I shall let the public judge as to the wisdom of such a policy, and whether it is wise to seek to develop, at expense, the industry on the one hand, and allow those already in it to be wiped out on the other for lack of funds."

The editor of the *Canadian Bee Journal*, commenting favorably on Mr. Holtermann's article, says, among other things, "Our officials are not to blame. On the contrary, they fully recognize the impossibility of checking the scourge with the scanty means placed at their disposal by the Government. If, however, the *whole* of the funds now being spent for apicultural purposes in the province could be used for taking vigorous repressive measures against bee diseases, better results would ensue."

Let me digress just here to state that European foul brood is the disease that Mr. Holtermann has mostly in view, and I presume the editor of the *Canadian Bee Journal* also refers particularly to this brand of foul brood, as it is generally admitted that the old-time variety we have been so familiar with is gradually being cornered, and has lost its terrors for most beekeepers.

Returning again to the article in question, let me say that I have quoted from it, because in reading it one can not help seeing at once that the author believes it is a

fallacy to try to persuade others to go into the business of beekeeping when those already in the business are up against such a serious menace as foul brood. And right here let me add that, during the past season, when traveling, meeting in convention, or in other ways associating with the majority of our producers, I found by actual inquiry that nearly all are of the same opinion as our friend in this matter. Ever since the Provincial apiarist has been appointed, I have been a loyal supporter of him, and to-day I believe we have a man in the position whom we have reason to be proud of; but at the same time there is no use in denying the fact that the work being done in connection with apiculture, in so far as practical help to those in the business is concerned, is not what most beekeepers were expecting when the government decided to open a department of apiculture at the Agricultural College. No doubt the same opinion is held by many beekeepers in the different States that have departments of apiculture; but as I am not so well acquainted with the producers so concerned, I can not speak with authority for them. When the editor of the *Canadian Bee Journal* says that if the *whole* of the funds now being spent for apiculture were applied to foul-brood suppression, I do not think he means to imply that the department should be abolished, but, rather, that as much as is now being granted for *all* the work should be given for foul-brood suppression alone.

I have already referred to the fact that the majority of the beekeepers believe that less encouragement should be given to those contemplating going into the business, and that more help should be given to those already established. This being a fact, it may be asked why more has not been said about it in a public manner; and for answer I would say that rather short crops, with an unlimited market for the same, has caused honey to reach a high-water mark here in Ontario, so that any real "kicking" is almost an impossibility at present. But let the present "boom" end, a series of heavy crops follow with attendant lower prices, then surely there would be a "howl" against any systematic propaganda for developing *more* beekeepers.

To those who have read thus far, this will no doubt seem but a bit of carping criticism; but I wish to assure one and all that nothing is further from my mind; for, regardless of what any of us beekeepers think about the matter, so long as our Govern-

ment fosters any industry in agricultural colleges, or in any other way, so long we may expect to see systematic instruction given in that industry; and all who will are at liberty to take advantage of that instruction. At the same time, care should be taken not to exaggerate the possibilities of the calling as an income-getter, and especially should all be warned of the very serious problems confronting the would-be beekeeper; for when all is said and done, even the most enthusiastic beekeeper must admit that our business is one peculiarly fraught with dangers, and often unexpected difficulties, all out of proportion to any other rural industry.

Again, let us remember that, in this matter of giving encouragement to beginners, the Government or its officials are not the chief sinners by any means. Without any desire to try to resolve ourselves into a mutual-admiration society, I would ask the question, "Are not beekeepers as a class the most unselfish lot of mortals that ever existed?" Do you ever feel like "turning down" some eager (perhaps needy) young fellow when he comes asking, in all earnestness, something about your business—the business you love? If you are feeling a bit out of sorts when you start to answer these questions, perhaps you may try to squirm out of them by saying, "What other business men are inclined to tell the secrets of their business and ready to lend a helping hand to others?" The very fact that you thus hesitate in answering, proves the truth of my first question. After all is said and done, *that very trait* in the make-up of most beekeepers has been the means of my getting so much enjoyment out of life during the past few years that we have been making our living from the bees alone. Of course, there are some *few*, even among beekeepers, who are as "business-like" as lots of people in other professions; and they will refuse to tell any thing about their methods, and will treat almost with contempt any one who would be so foolish as to ask for help. If you are not one of that class (and I don't believe you are), in all honesty how do you like to rub shoulders with such men when at conventions or other places? And, by the way, very few, like the ones described, ever come to conventions or attempt to mingle with the beekeepers at large.

Yes, life consists of more than *business*; and while self-preservation is, we are told, the first law of nature, yet none of us liveth to himself; and, generally speaking, all we can do for the other fellow will return us good interest—if not in dollars, in some-

thing worth much more than can be estimated by the currency of our land.

Mount Joy, Dec. 29.

[Deeming it no more than fair to let Mr. Pettit make his own comment on the above, we submitted to him as well as to Mr. Byer a proof. Mr. Pettit says:]

I don't know that there is very much to say, as Mr. Byer has answered himself pretty well before he has finished; but it does look to me like setting up straw men for the fun of knocking them down. First, the implication is made that I am inviting people to go into beekeeping instead of helping those who are already engaged in the business. In reply, let me say that I have been repeatedly asked by my chief to prepare a bulletin especially for beginners in beekeeping, but so far have not had time to do so. My work has been fully occupied in an educational campaign, principally for those already engaged in beekeeping, and more particularly for the benefit of those who have or expect in the near future to have foul brood to contend with. I can say, without fear of contradiction by those who know the facts of the case, that 19 out of 20 of those receiving benefit from the expenditure of government money for beekeeping in Ontario were already engaged in keeping bees before this department was established. The whole trend of educational work is along the line of making them better able to contend with foul brood.

Surely Mr. Byer is joking when he speaks of the advancing prices of honey as a "boom." It is not keeping pace with other food products, and there is no indication of their prices being reduced in the near future.

Mr. Byer makes the statement that during the past season, "when traveling, meeting in convention, or in other ways associating with the majority of our producers," he found by actual inquiry that nearly all are of the same opinion as our friend in this matter. Now, there are 10,000 beekeepers in Ontario, and I imagine I am safe in saying that at least half of them are producers of honey; but supposing only one in five were a producer, Mr. Byer was not on government work of any kind except to attend two or three demonstrations in one county, and at the Toronto convention in November. How, then, did he come in contact with 2,000 Ontario beekeepers, and have the opportunity of questioning each one as to his opinion of the work done by the Ontario Agricultural College in order to find that the majority of them thought as he does in

the case? As a matter of fact I receive a number of kind letters of appreciation from Ontario honey-producers, but very few indeed of the nature of Mr. Byer's letter.

[We hardly think that Mr. Byer meant that he had actually questioned over half of the producers. By "majority" he probably had in mind those more prominent in the industry. See editorial.—ED.]

HOW A BREEDER SELECTS A GOOD QUEEN

BY H. G. QURIN

In a recent issue of GLEANINGS I note that some of the breeders are asked to tell how to judge a queen. In judging a queen, a breeder is often governed by principles difficult to express in words. A queen in a cage can not very well be judged, as all one has to go by is her looks; and one can tell no more about a queen from her looks than how far a toad will hop from its looks. It is true we can tell where the queen is of good size, and is properly proportioned; also whether she is spry and active, and we can make a good guess as to whether she is laying or not; but for any thing outside of this we must go to the hive where she is doing such duties as are required of her, and where the qualities to be desired in a queen are in evidence. If I were selecting queens for my own use I would not ask to see the queen at all, but would judge her by her colony.

In selecting a breeder, we naturally have to select a queen whose progeny possess such markings and qualities as are designated by Mr. Purchaser. Such breeders are almost always selected from queens at least a year old, as otherwise we can tell but little about their working quality. However, prolificness, gentleness, and ordinary working quality can be foretold in queens much younger than this. There probably is no one quality that pleases the masses more than an extraordinarily prolific queen; and as a rule it is these populous colonies which roll up the most surplus.

One thing about the size of a queen. The larger the queen, the more pleased is the customer; yet this larger size does not necessarily mean that the queen's prolificness is in accordance with her size. In fact, it often happens to be just the contrary. I call to mind instances in years gone by when, in coming across an extra-strong colony, I would invariably spot them as breeders, providing the bees possessed the required qualities. However, just as often as not when I looked for the queen I found her to be a rather undersized individual, and there-

fore she would be rejected as a breeder. I have since often thought that I would at some time try such a queen as a breeder for at least a few batches of cells, for it is my opinion their daughters would be good and of good size. My theory is that the bees, however, from such queens are not as long-lived as those of a normal-sized breeder.

The following are desirable points in a breeder: Solid combs of brood, not too early laying in the spring (real early brood-rearing often causes spring dwindling), and a breeder whose bees are reasonably gentle (not as harmless as flies), but just reasonably docile bees which will cap honey white, and fill the boxes out plump, even if the flow is a little light. Then, of course, we want bees that swarm as little as possible.

Some bees, when a honey-flow slackens, stop work in the boxes and crowd the queen into the brood-nest. This kind of bee has never suited me. While I admit it is nature to be looking out for herself, I prefer to have the sections completed at the expense of the brood-nest, even though I have to furnish the bees their winter stores.

Bellevue, O.

THE ADVANTAGES IN FAVOR OF A SHELTERED LOCALITY

BY DAVID ROBERTS

The apiary, when convenient, should be located in a place protected from prevailing winds. My home apiary, for a reason that does not matter here, is in two divisions—one on a southward slope sheltered on the west by tall trees, and on the north by buildings; the other, in a young orchard exposed to the northeast and south.

I consider the season of 1911-'12 a good one in which to make a comparison between these divisions. The winter before, I prepared all colonies alike, using on top of the honey-boards cushions 6 inches thick, of forest leaves. Leaves of the previous year are more crumbly than those of the current, and make fair packing if well compressed and kept dry. The entrance-guards were open $6 \times \frac{1}{4}$, veneered by narrow strips of tin, and nailed to the hives to keep off mice. This was done in November, and I did not see the bees again until early in March, when I noticed that in the open, on account of freer circulation of air, the warmer molecules in close contact with the bees, because of being lighter, gave place to cooler ones, and were carried away from the hive. This was a direct loss of heat, but at a time when the bees could stand it best. As a result, the loss here was more immediate. In the

shelter, more moisture remained in the packing, and in freezing gave back some of its heat. Up to this time it caused no trouble. But when this mass began to thaw it proved worse than worthless, for it called back all of the heat it had given up, and at a time when the bees could least afford it. This condition, however, could have been avoided if attention to the packing had been given before now. As it was, it turned the scale for the time in favor of the exposed division. But, wait a while.

Later on, the sheltered division gave a good account of itself. It proved that "location" is a factor in beekeeping in more senses than one. After all, it is not so much a question how many colonies survive the winter, but, rather, what progress the survivors are making in early spring. It is the bees at the day of harvest that count.

"Bees in the shelter are more prone to swarm." If this assertion were true, and no swarms were desired, this would seem to throw the advantage again in favor of the exposed. But shelter is not conducive to swarming except so far as it favors brood-rearing. Give more time to the exposed colony, and manage it the same otherwise, and it will usually swarm. "Time is money." Especially is this true with the beekeeper, for here lies the difference between a crop of honey and no crop at all.

I say, keep in the shelter and use more packing.

Knox, Ind.

BEES DO NOT LOSE THEIR STINGS WHEN ATTACKING OTHER BEES

BY ELIAS FOX

In thirty years of practical experience with bees, during which time I have seen a good many queens and thousands of workers killed by being stung, I have yet to see the first bee with a sting lodged in it. I have seen thousands of them administering the sting, but never yet saw one lose its sting. They do the work very quickly, and are immediately ready for another or perhaps a dozen more victims. This, it seems to me, is a wise provision of nature, that they may protect their homes against intruders and robbers; for if it were not so, a colony would be nearly defenseless. On the other hand, it is a wise provision of nature that they lose their stings when using them on their keepers and animals, as a warning to be more discreet in their application.

If you think the pain is less severe when the sting is not retained in the flesh, some

time next summer on some hot day while you are bending over a hive let a bee sting you on the back just between the shoulders. You will straighten up so quickly that the sting will be instantaneously withdrawn by the shirt; and if you don't say it is as painful a sting as you ever received I am no judge of pain.

As for drones, I don't know, as I never yet have seen a bee sting one, although I have seen them make all the motions, and act as if they wanted to sting them; yet I think it is very evident that they do sting them—at least I know they can cover the ground in front of the entrance with dead drones over night when the honey-flow is brought to an abrupt end. But I never yet have seen a sting left in one, neither do I believe they lose their stings when killing drones any more than when they kill a worker or queen. If they did it would be a queer provision of a wise Creator, as it is just as essential to the welfare of the colony that they rid themselves of the useless drones after the honey-flow ceases as it is to rear them so carefully before the flow.

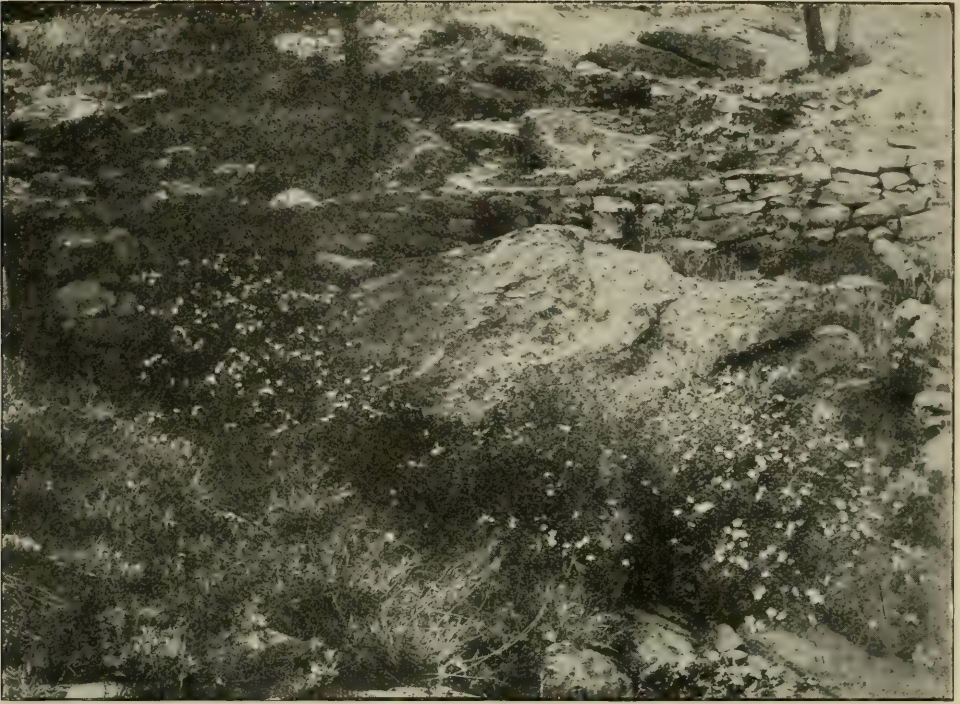
The queen's sting is a little different in shape from that of the worker, being slightly curved, and apparently smooth, and free from barbs, similar to that of a yellowjacket or wasp that can sting every time occasion calls for it. I should like to ask if any one has ever been stung by a queen bee.

Out of curiosity I have tried every conceivable manner, both with virgins and old laying queens, to have them sting my hands and arms, and have never yet been able to have that curiosity satisfied; and if any one else has, I am from Missouri.

VEILS.

I was amused to read Arthur C. Miller's article, Dec. 15, p. 808, relative to the various veils. To me there is more real merit in the last two lines than all the rest of it. His pet veil, I see, has the same petticoat that he was making fun of. I have tried the most of them he has described, in a less exaggerated form, and the very best one I have found is the good black net with black net silk and all, with a good rubber cord in each end, one of which fits tightly around a hat of any kind, and the other around the neck. It can be adjusted or removed almost in a second; is always ready, and can be carried in the vest pocket if desired, with no danger of receiving stings through it. I feel just as safe in one of these among the bees as I would in my house with doors and windows screened. I would not give *one* for a dozen of any other kind I have ever seen or read of.

Union Center, Wis., Dec. 27.



The thimbleberry in bloom.—*Photo by Wesley Foster.*

THE FLOWERS OF THE FOOTHILLS

BY WESLEY FOSTER

The love for and knowledge of the flowers in a way measures the quality of the beekeeper. If he has not an intimate acquaintance with the honey flora in his neighboring fields, hills, and ravines he will be handicapped as a successful beeman.

Let us go for a walk on an early May morning. Before we have gone more than half a mile up the slope toward the foothills we stop and listen to the hum of the bees passing over our heads back and forth from the apiaries in the valley to the hawthorn, chokecherry, and thimbleberry bloom in the foothills.

We find the chokecherries and the hawthorn lining the streams issuing from every ravine and canyon. The hawthorn is so fragrant that the aroma is sickening, and the bees swarm over the shrub-like trees in thousands. It is a merry trade that is kept up; and all the bees have to do is to glide downhill for the matter of a mile or so to get home with their load of hawthorn honey. A hive of bees has filled a super of comb honey from the wild-flower bloom before the 10th of May, though this is uncommon. The great benefit of this early bloom is to build up the colonies in numbers for

the alfalfa and sweet-clover flow in June, July, and August.

The thimbleberry is a beautiful shrub, fit for any park or lawn; and I'll wager that the nurserymen sell a good many of them for that purpose too. They are easily obtained, for there is scarcely a boulder where a thimbleberry-bush is not growing beside it, throwing its branches laden with bloom over the edges of the rock in a very pleasing and artistic way.

The thimbleberry has a large white flower an inch and a half to two inches in diameter. The center is yellow, and the bees wallow around in the pollen, getting all covered with it. The berry, when ripe, is about the size of a red raspberry, and nearly the color, though not so brightly colored. It is not so edible, though when we are out for a picnic we eat them and call them good, probably because they grow wild and are plentiful. They are mostly seeds, with but very little juice to furnish a taste. Perhaps Mr. Burbank or some other plant-wizard could develop something worthy from the plant. A patch of thimbleberries would certainly be a delight to the eye.

But we are out in search of flowers, and here we come to a flower-covered slope of the mountain covered with wild sweet williams. (See cover picture.) This is not a hon-



Daisies from which the bees get pollen.—*Photo by Wesley Foster.*

ey-producing flower, though it is a most fragrant one. A few bees have been seen on the blossoms, and hovering over the fragrant clusters. Probably the sweet perfume attracts the bees, and they fly around till they find out there is little if any thing there for them. Does each bee, when she goes out to work in the fields, have to learn the blossoms that furnish honey? It is reasonable to suppose that the bee has to learn some things, and not depend on instinct for every thing. From the sweetness of the wild sweet-williams I should guess that many a bee has conducted a fruitless search for nectar among the pink and reddish blossoms of this delicate flower till she learned that 'tis not all nectar that smelleth sweet.

As we return from our walk we stroll through an old orchard, and here under one of the trees is a dainty little bed of daisies. The bees are busily at work collecting the pollen. None seem to be getting any nectar, so we decide that this daisy, at least, is not a honey-producer. The variety we do not know; but it is one of the small kinds with a yellow center and white petals. The stems hold the blossoms about six inches above the ground, and they grow close together in little groups as so many flowers do, for the flowers are social in their habits as well as the bees.

In our walk we have seen many flowers of brilliant hue, but with no odor that attracts the bees, and these we admired for their own sake. The flowers the bees love are the ones that appeal to us as beemen; and as we reached home we remarked that alfalfa is making a good start, and sweet clover is becoming evident along the roadsides and ditch-banks.

Boulder, Col.

PROTECTING ROWS OF HIVES IN UTAH

BY M. A. GILL

Although I am hardly a beginner in the bee business, yet I am a beginner in giving better winter protection in this western country, so am sending some pictures showing how I prepare for winter by a plan which proved so successful during last winter.

Fig. 1 shows the front of two rows two hives high, and the backing of forest leaves between (myself in front). The covers have been removed from the bottom rows, and the entrances are contracted to $\frac{3}{8} \times 3$ inches by a lath with a notch in it tacked on the entrance. The covers on the top row have an air-space to allow moisture to escape. Fig. 2 shows the back or north side, show-



FIG. 1.—M. A. Gill's method of protecting a whole row of hives.

ing the tar-felt paper coming down nearly to the ground. The space below, and, in fact, half way up the back side, should be well banked up with earth. Forest leaves, alfalfa straw, or seed chaff, as it is called, I think the best of packing.

While this kind of packing would not do for Wisconsin or Canada, I think it ample for our western States, as it keeps the bees absolutely free from outside moisture, helps to conserve their natural heat, and is entirely impervious to the prevailing winds, which are so detrimental where a continual blast is against the hives. The loss of bees by mixing up is much less than one would suppose during the days when they can fly.

Hyrum, Utah, Dec. 16.

MY PERFECT FEEDER

BY JAY SMITH

There is no one phase of beekeeping that I have studied more carefully than the question of feeding and feeders. In my earlier experience I tried various feeders, every kind that seemed to have merit, and found them wanting in one point or another. This lesson, however, I learned: Colonies properly fed always outstrip the others. But it was a big job to feed 100 colonies, as I am engaged in school work, and could not spare the time when the bees needed me most. So I joined that large of army of beekeepers who say that if bees have plenty of stores they will do just as well without



FIG. 2.—The back of the row shown in Fig. 1.



Filling the "Perfect" feeders.

feeding. The four years following ran something like this: Bees in large hives with plenty of stores did well; but about one-half did not have plenty of stores.

Perhaps one swarmed, and both the swarm and the old colony went into winter quarters a little short of stores. Both failed to respond to the call of the maple blossoms in spring. Perhaps the increase that was made depended upon that "fall flow" that did not come. Perhaps there was a failing queen. Yes, there are many "perhaps" in an apiary of but 100 colonies. So, after toying with the non-feeding method it was plain that, whether I liked feeding or not, I would *have* to feed if I stayed in the bee business.

Of all the feeders on the market, the Alexander was plainly head and shoulders **above** all others; but for me it had several **draw-backs**. I wanted a feeder that was always on the hive, so that, if necessary, I could **make** syrup and feed the whole apiary any time the bees needed it, and do it after or before school. The Alexander feeder is hard to fit to a hive. Where brood-frames are flush with the hive-bottom the frames rest on the feeder, shutting off the passage for bees, and killing them when handling frames, as the cross-piece on the back of

the bottom-board also comes in contact with the brood-frames. Then if not left on the hive the year round, in case the bees need feeding in the spring it takes more time to put the feeders on than I can spare.

After considerable experimenting I hit upon the feeder illustrated. I had the narrow cleats made at a planing-mill, and the material complete cost 5 cts. per hive. It took about 40 minutes' work per hive to make them. To fit the cleats I put ten of them in a vise so they could not split; then with a little drill I made the holes for the nails. They could then be nailed to the bottom-board without splitting.

There is a quarter-inch space between them and at the ends, for the syrup to run around. The lower side of the five cleats next to the door are notched so as to allow the syrup to run through, and the block on the back of the bottom-board is also notched so the syrup will run into the feeder. The syrup also stands in this, so you can see at a glance how much there is in the feeder. If it should become sour for any reason, all you have to do is to raise up the front end of the hive, and it will run out the door. The upper part of the lid is notched out so as not to crush bees if any should crawl out while the syrup is being put in; and there



Jay Smith's "Perfect" feeder in the rear of the bottom-board.

is a bee-space over the feeder so no bees are crushed when frames are handled.

This feeder is *always* ready. I have frequently fed 100 colonies in less than 15 minutes. The feeder holds one quart; so if it is desirable to feed for winter, feed them twice a day for four or five days, and they will be "choke full." I have 100 fitted in this way, and I see nothing lacking; and so I call it the "Perfect" feeder. The bees keep it glued up water-tight, and they like to cluster down among the cleats.

Mr. Aspinwall certainly discovered an important principle in making his hives full of little cleats. I helped hive a swarm in one of his hives, and I was impressed by the way the bees took to the cleats, spreading among them as naturally as though they themselves had made it. In this same manner do they cluster in my Perfect feeder when it is empty.

I do not believe beekeepers as a rule are alive to the importance of stimulative feeding. If you have good vigorous queens, large hives, and if you give a little warm syrup each night for a month before the honey-flow you will get a crop where others will not; and, what is more, your bees will go into winter quarters rich in stores where others will starve. Enough emphasis can not be laid upon the fact that *strong* colonies get the surplus where those not so strong will starve.

Some readers of GLEANINGS may remember that, several years ago, I wrote that the common eight-frame hive is entirely too small for a good queen. It was not uncommon for a poor queen to get more honey than a good one. The good queen filled the brood-nest and swarmed, while the poorer one did not swarm, thereby producing more honey.

For about six years I have used a Danzenbaker hive and extracting-super for a brood-nest (it is gratifying to me to see the trend is toward a larger hive). This hive is

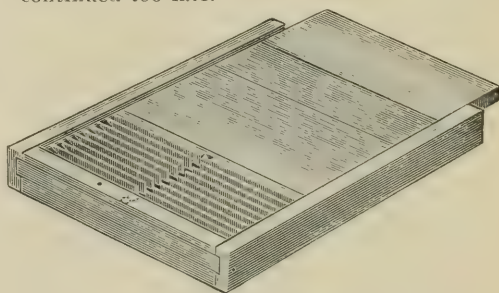
good; but there is valuable space lost in cold weather, as the bees must keep warm a top-bar, a bottom-bar, a bee-space, etc., right in the cluster, while they might better be raising brood there, so I prefer a one-story large hive for extracted honey. The Jumbo hive is none too large. Bees will build up better in the spring, as they work better on a single large comb than on

smaller ones. Doubtless many readers have seen bees stick to one comb, filling it clear out to the ends before jumping to the comb above. There is a great loss of heat in this way where divisible hives are used; as, in order to preserve their heat to the fullest extent, the bees should rear brood in a circle, and this they will do only on large deep brood-frames. Seldom indeed do you see a man who has used large hives go to smaller ones; but it frequently works the other way.

If you are in a poor locality, use the Jumbo hive or one as large; practice stimulative feeding with the Perfect feeder, or one similar, and you will get honey when others lose their bees through starvation.

Vincennes, Ind.

[If we understand our correspondent he would call the Jumbo frame ideal if the empty cells above the brood were filled with syrup before the honey-flow to prevent the bees from storing the first honey there instead of in the supers. There is some danger of having a part of the sugar syrup carried up into the supers if the feeding is continued too late.



The feeder described is similar in principle to the Cary-feeder bottom-board formerly sold by supply dealers, although, in the latter, as is seen in the engraving reproduced herewith, grooves were cut in the rear floor board to make room for the syrup.—Ed.]

EXPERIENCES OF A FOUL-BROOD INSPECTOR

Eradicating the Disease Not Difficult if the Bee-keepers Co-operate

BY J. E. CRANE

Continued from page 86, Feb. 1.

The more I have seen of foul brood, and especially of the European type, the more fully I am satisfied that, in order to make a success of inspection, the work must be done in the most thorough manner. It is not enough when a case of foul brood is found to clean that up and go on one's way feeling that his whole duty is done. Unless every yard in that section is found and inspected, the work is likely to be of no permanent value; for if there should happen to be a yard just over the hill or across the fields half a mile away, where disease exists, it will soon break out again, and no lasting cure will be effected, and perhaps the cause will be attributed to the method of treating the disease. Of course, an inspector can not find *every* colony of wild bees, so we must watch with great care until we feel sure that every wild colony has gone out of existence. We shall then have the matter in our own hands.

As yet, there are few States that are willing to appropriate a sum large enough to do all the work that should be done as it ought to be done; nor have we enough inspectors to do the work. But I believe it would be better to do thorough work than to extend it over too large a territory and thus spread it so thin that, almost as soon as the inspector is gone, the disease will spring up.

It may often happen that a single yard is all that is affected in one locality, while in others it is scattered over a whole town, and in one case over almost one entire county.

There are some serious problems connected with these diseases. Already some States have forbidden the importation of colonies into their borders unless accompanied by a certificate that each colony is free from disease. This is already causing some trouble. How about the time when various States will prohibit the importation of honey from diseased apiaries? And why should they not do so? Honey is consumed in our larger towns, and the containers are thrown on the dump to scatter disease if there was any in the honey used.

The ignorance of a great many beekeepers enters into the problem of how to get rid of disease. Many have never heard of such a thing. I have visited several beekeepers; and as we have opened hive after



The Spencer boys, who are expert at extracting fish from the lake and honey from the combs.

hive, and have found only webs and cocoons and filth, the moths have received the exeration of the owners, as they have no conception of disease.

BOYS THAT KNOW HOW TO WORK.

It is no easy job to clean up a large yard where foul brood has a strong foothold. In one such yard I found the owner at work. Hearing a noise in his honey-house I went in there and found his two sons, one eleven and the other thirteen, dressed in overalls. One was uncapping, the other turning the extractor. Both were working like old men. I send their photos as worthy of a place in GLEANINGS. They live near a lake, and it seems evident that they can extract fish from its waters as well as honey from the comb.

One beekeeper to whom I wrote, asking if he had had any experience with disease among his bees, replied that he had lost about half of them during the winter, and what he had left were quite weak; but he thought that there was no disease among them. I improved my first opportunity to visit him, and found that most of the colonies that remained were more or less diseased. While I talked bees with him, his good wife talked to me on the subject of religion, for she was anxious to know if I was prepared for "the solemn hour of death." I was somewhat embarrassed. I didn't quite know what to say. I thought I was in some measure prepared to live, which seemed to me to be of much greater importance. Of course, she meant well, good soul that she was, and it is an awful thing to think of one's going through life at odds with the Almighty, caring nothing for him when we may live with him on terms of

friendship and filial affection, and even sweet companionship. When our lives are properly adjusted to all above and around us it is a glad and joyous thing to live, and there need be little fear of death.

But the inspector has little time to discuss religion or politics if he would do his duty. His life is a busy one, and he takes an interest in it that few public officials surpass, for the enemy he fights is a personal one, and unless it is overcome and destroyed he knows not how soon it may reach him and greatly injure his own business.

THE UNPLEASANT PART OF THE WORK.

While there are many pleasant things about inspection work, it is by no means all pleasant. There are some long days and long delays waiting for trains. If prepared for work, one must dress rather plainly, for good clothes are almost sure to be ruined. I prefer to go dressed for work so as to accomplish the most in the least time. Al-



One of Mr. Holtermann's students securing full sheets of foundation by means of melted wax in a "bulb" wax-tube.

though last summer was quite dry I was caught in two showers, and was wet to the skin. One day I started to visit a yard that I was told was two miles away, and found it at least four miles, and over a tremendous hill. Just as I reached the place a thunder shower overtook me, and I had to turn around and start back without opening a hive, as I had to take a train that afternoon. A deer, as though to make me ashamed of myself for getting wet, came out of a pasture, and, walking near me, watched me with its curious soft eyes, then ran ahead, crossed the road, and went into the forest on the other side.

After reaching the hotel and station I had time, while waiting for the train, to glance through a butter-factory where they sometimes make 5000 lbs. of butter in a day.

BOTH DISEASES IN ONE HIVE.

I notice there has been some question as to whether American foul brood and European foul brood are ever found in the same hive. I have found but a comparatively small amount of American foul brood; but where I have found both kinds in proximity, I have been quite sure to find some of both kinds in the same hives.

Middlebury, Vermont.

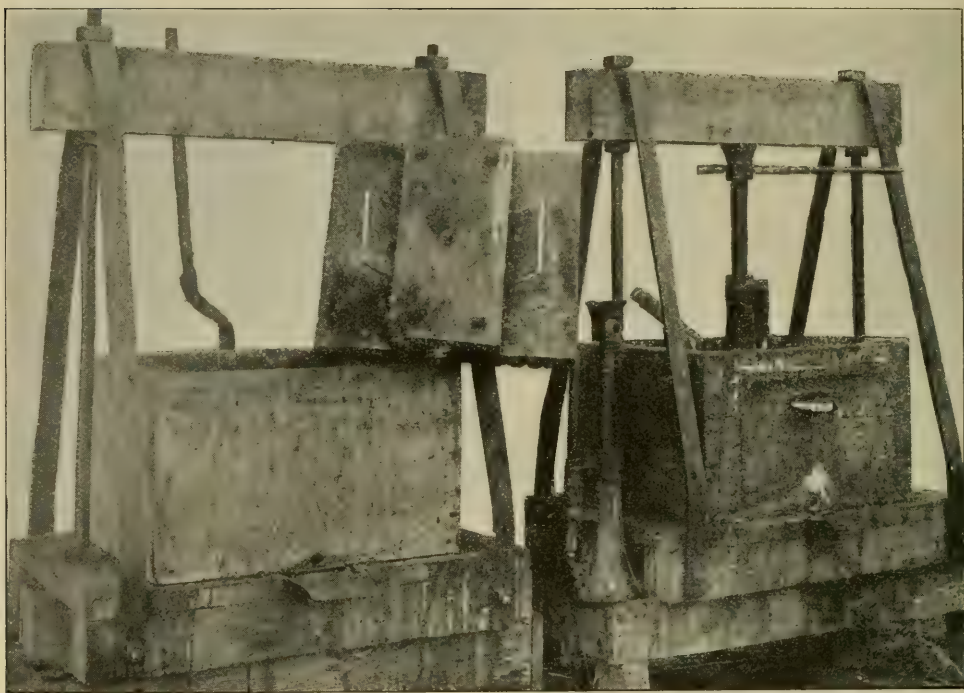
A BULB WAX-TUBE FOR FASTENING BROOD FOUNDATION IN FRAMES

BY R. F. HOLTERMANN

In my opinion it is wasteful to fasten comb foundation in brood-frames by means of a saw-cut in the top-bar. First, it weak-



Mr. R. F. Holtermann's four helpers for the season of 1912. Top row: Closson Scott, Newton Falls, Ohio, and C. J. Hawkes, London, England; lower row: D. Glenelg Holtermann, Brantford, Canada, and Felix B. Stump, Parkersburg, West Virginia.



Atwater's home-made wax-press.

ens the bar. The frame I use has a top-bar $1\frac{1}{8}$ wide by $\frac{5}{8}$ deep, and no saw-cut. There are nearly 10,000 extracting-frames in use, and only once in a very long while, when the wood is cross-grained, can a sagging top-bar be found. This top-bar gives me one row of cells to each frame more than the $\frac{7}{8}$ top-bar. Next, I get the use of one more cell of comb foundation to each sheet, which, in 1000 frames, is quite an item.

The illustration shows our method of putting in brood foundation. Upon a long board are put three smaller boards that just slip inside the Langstroth frame, and are of a thickness that, when the frame is slipped over this smaller board, a sheet of foundation upon this smaller board rests on its upper edge against the center of the top-bar.

A rubber bulb and glass tube is used to take up the melted resinous wax (by guess one-third resin and two-thirds wax), and this tube is run along the top-bar to fasten the foundation as shown in the illustration. The under board is moistened by means of a sponge to keep melted wax on the sheet from sticking.

Brantford, Canada.

VARIOUS METHODS OF TREATING AMERICAN FOUL BROOD

Rendering Wax Economically from Old Combs

BY E. F. ATWATER

The beekeeper who produces extracted honey in a foul-broody locality need not abandon its production for that of comb honey. Some very extensive producers of extracted honey are continually confronted with the disease, largely as a result of the carelessness or ignorance of the small beekeepers and box-hive men near by. One man of my acquaintance even thinks it is easier to control the disease when producing extracted honey than when producing comb honey.

In the line of equipment one needs always an ample supply of extra hives, frames, and foundation, to cope with any emergency; a bee-tight room, a steam-boiler not too small; two powerful wax-presses as shown in the illustration, and a few barrels or galvanized tanks. The bees must be examined in early spring; and any that are badly diseased should be sulphured, and the hives securely closed and stored where no bees can enter. Colonies having but little disease must have the entrances contracted

to $\frac{3}{8} \times \frac{1}{2}$ or smaller; and if but few diseased colonies are found they should be hauled home that evening where they can be treated more safely than at any outyard. A later examination will show if the disease is appearing in other colonies. If one or more foul colonies in your own or near-by yards have been robbed by your bees, a second examination may disclose a few more diseased colonies, or, as has happened twice in our experience, half or all of the yard may be found affected; and then the only recourse is to treat the entire apiary—not so colossal a task as might appear.

At the opening of the flow, every diseased colony must be shaken into a clean hive containing full sheets of foundation. Regardless of whether it is necessary to disinfect the hive, we wish to ask, "Where are we to store the combs better than in the hives from which they came? then, if not rendered until late in the season, how can we make sure that the destruction of all spores is complete in any better way than by boiling the hive after all combs are melted?" Aside from this, we are satisfied that it is not necessary to disinfect the hive. Mr. Trickey, of Nevada, recommends taking several combs away from each diseased colony a few days before shaking. This is not advisable if the flow is at hand, as the bees will fill the empty space with comb. But if not too large a proportion of colonies is affected, and the flow is at hand, so there is no robbing, it is well to take away several combs from each diseased colony, brushing the bees into the hive. To be sure of results, the queen should be caged—preferably in the morning. When evening comes, a new hive of foundation should be set in place of the old one, the lid taken off, and the bees clustered on it, and dumped in front of the new hive. Then the bees should be taken from the remaining three combs, the queen liberated, when the cure will be complete. Taking away part of the combs causes the bees to cluster and to start the secretion of wax, and very greatly reduces the actual work of shaking. This shaking should be started when the bees cease flying for the day, and should be continued until dark.

In our own work we now use and prefer the Chantry method of cure, where the yard can be revisited in from three to five days. In this plan the new hive is filled with frames containing full sheets of foundation, except that the central frame is at least one-fourth to one-half full of empty comb (the poorest combs in the yard may be so used), while on each side of this frame is one frame with a starter only. Three to five

days after shaking, this central comb is carefully removed; and while the bees are working freely, the bees are carefully and quickly brushed in front of the hive or into it, and another frame with a full sheet of foundation is added. By the Chantry plan, any diseased honey not at once used for wax-working will be stored in the bit of old comb. The empty space on each side favors compact clustering and free wax-secretion, and both comb and space favor that content which tends to prevent swarming out and drifting to neighboring hives. (At the recent convention of the Southern Idaho and Eastern Oregon Beekeepers' Association, Mr. G. J. Yoder strongly advocated quickly *driving* the bees from a foul hive into the new hive, doing the work when the bees are gathering heavily, say between 11 A. M. and 4 P. M., as the driven swarm is far less likely to "drift" or to swarm out than if *shaken*, with the added advantage that night work is avoided.) Whatever the actual method of removing the diseased combs, all such combs, together with all combs used for three to five days on the Chantry plan, are now stored where no bees can reach them. The apiary may now be supered, after putting an excluder on each colony. When it is time to extract, if at all fearful of reinfection from yards near by, we remove the supers and the excluder, lift a comb or two, when, if no disease is apparent, we remove the supers to the shop for extracting. If a few colonies are found with a little disease, and the season is too far advanced to be worth the trouble of curing such colonies, we see that the bees have as much room as they can fill, above the excluder. Then as the flow wanes, they should be sulphured, and all the combs stored where they will be secure from robbers.

If it is possible to spare the time, when the last flow is waning every colony should be inspected. If one waits until the flow is over, robbers may be so bad that inspection of a large yard will be impossible unless, perhaps, the feeding of a large amount of very thin syrup might keep the bees so busy as to allow them to be handled the same as during a flow.

One of the greatest aids is to get out and clean up neighboring colonies, or to get the inspector to do so. If one has the time, and cares to risk the mere presence of the disease in the yard, he can save every diseased colony that has enough bees to winter. The plan consists in simply contracting the entrance and fitting an Alexander feeder under the hive, with extra care to have every thing tight. When all brood has hatched,

some time late in the fall give the bees a feeder full of warm syrup at 4 or 5 P. M., and in an hour give them another. Then when they have stopped flying, brush them into a new hive with as many solid combs of sealed honey as they can cover. By filling with warm syrup the bees to be cured, we effectually prevent any chance of failing to cure the disease by the above method, though we seldom bother to cure any cases found late in the season, as bees are easy to raise here, and we prefer to remove all chances of infection earlier in the season.

When the season is over, one should be ready to melt the combs taken from diseased colonies. Have your steam-boiler standing outside the shop; run steam inside through a half-inch pipe, into both wax-presses, and into several barrels or tanks. Melt the combs either by direct steam or by boiling, as preferred; then when there is a lot of hot melted comb, fill a press, put on the pressure, begin to melt more combs, occasionally turning down the jack-screw of the first press, then fill the second press and repeat. About the only limit to the amount that one can render is the limit of the steam supply. It is not wise to get too small a boiler. With our powerful presses we get the best results by pressing the first time, just as the melted comb comes from the boilers, taking care to dip up plenty of water with the comb, but having a little steam constantly running into the press. After the wax ceases to run in a decided stream, we loosen up the screw, fill the press with boiling water, turn on more steam, which shakes up the slumgum, causing it to take up more water; again apply the pressure, finally drawing off all the wax and water into a deep Aikin wax-separator, which runs the wax into one can and the water into another, where it may be used again.

Any combs, either from the brood-nest or super, that show no disease may be extracted if the honey is not candied. The extractor should be a small one, used for no other purpose. Combs of candied honey (provided the old brood-combs are not full of cocoons) may be run through the Powers capping-melter. Such honey may be shipped in winter, to be used for manufacturing purposes if one has a market for such goods.

If diseased honey is to be saved for feed (and the bee business is not such a bonanza that it is not necessary to save every such by-product), we now have a new method of saving all of it. When rendering, we cut out any diseased parts of combs containing some honey; pile these frames and combs of

honey in the capping-melter; cover with doubled canvas, and steam. The honey, somewhat thinned by the steam, runs out at a great rate, is separated from the wax, and then canned. This is somewhat similar to the method recently described by Mr. Wesley Foster, p. 473, Aug. 1, 1912, but by using a big steam supply from a regular boiler the work is more rapid. If we have much honey to save from diseased combs another year, we expect to build a large cupboard of galvanized iron in which shelves of combs, standing, may be shoved, so as to melt a large quantity at once.

In the footnote to Mr. Foster's article mentioned above, the editor intimated that such a process sterilizes the honey; but our tests compel us to sound a warning, as we find that a temperature of only 180 degrees Fahr. is reached by the honey so steam-melted. Of course, a saving of fuel would result if the honey so melted were at once boiled over a fire. Before feeding such honey we dilute it until it is about one-fourth water, then boil it over gasoline-stoves (so as to control the temperature, thus avoiding boiling over and the danger of fire). For this purpose we use wash-boilers with a cover on each. We do not put on the cover at once, as honey which is being heated has some queer notions. When it first begins to boil, one must watch closely, turning down the blaze as necessary, and stirring. Then, as a rule, after it has boiled for perhaps five minutes, the tendency to boil over is past, and the cover may be put on the boiler. The cover should have a one-fourth-inch hole in it, at the top, where the steam may escape. Do not go away and leave the boiling honey, as some lots will again boil over unless watched and stirred, while other lots will boil furiously without danger. We boil the honey for fifteen minutes at least; then a few days later, usually when the honey is needed for feed, we again boil it for about five minutes.

If the directions which have been given are followed, using a cover on each boiler (an idea that we obtained from Mr. R. D. Bradshaw, of Payette, Ida.), the feed is so safe that I have felt no anxiety in using it freely, in outside feeders, in yards of as many as 275 colonies.

When through rendering, the floor and walls, as well as the tools and clothes, should be freely sprayed with a very strong carbolic solution, so as to avoid any chance of the bees picking up any thing that might lead to the disease; for, even if the carbolic solution should fail to kill all germs and spores, the strong odor is so objectionable as to prevent bees from working on any

thing sprayed with it. The disease of which I have written is the real so-called American foul brood, with which I have had to contend most of the time, in one or more yards, for more than a dozen years, twice having to melt the combs from an entire yard.

Meridian, Idaho.

BEEKEEPING IN THE ISLAND OF CYPRUS

The Progress in Apiculture as Seen by a Veteran Beekeeper

BY M. G. DERVISHIAN

I am glad to say that, about twenty-nine year ago, when I started beekeeping at the town of Larnaca, on the island of Cyprus, I was a reader of *GLEANINGS* for a few years. Then I received a copy of the *A B C of Bee Culture*. I sincerely confess that, during the period of twenty-three years, when I was without *GLEANINGS*, I was a loser. Two years ago I subscribed again for *GLEANINGS*. I take great pleasure in mentioning that the improvements in bee culture during the last twenty years appear to me to be wonderfully great. These improvements are, no doubt, attained to a great extent through the instrumentality of the beekeeping journals in which the experiences of many prominent beekeepers are concentrated and discussed for the benefit of all the readers.

Naturally, in the past twenty-three years necessity and close observation have taught me a few things which I now have the pleasure to put before my fellow beekeepers.

COVERING THE TOPS OF FRAMES.

Many years ago I used to cover the tops of the frames with oilcloth or with a thick cotton cloth. I discarded the oilcloth because it kept the inside of the hive damp. The use of the cotton cloth was becoming very expensive because the bees were always gnawing and piercing the cloth; and besides this they wasted a great deal of their energy in propolizing it. Each time, when the cloth became worthless on account of many holes in it, it was thrown away, together with the propolis, as this could not be scraped off and returned to the bees. I therefore discarded the use of the cotton cloth also, and commenced covering the top of the frames with a thin wooden lid in three pieces. At first I used to nail wooden bars half an inch wide by one-fourth inch thick around this lid in such a way as to provide a bee-space between the tops of the frames and the inner surface of the lid. Seeing that, in so doing, the bees were building bridges and wasting wax and pro-

polis I discarded this kind of lid and replaced it with wooden bars about three-eighths inch thick and two and three-quarters inch wide, each bar to cover exactly the tops of two frames from end to end. These bars are put flat on the tops of the frames without leaving any bee-space. I have twelve frames in each hive, and I use six such wooden covers for every hive. This arrangement gives me great facility of movement, as I can remove as many as I like of these six covers; and I scrape off the small amount of propolis, which I return to the bees. For re-covering the tops of the frames I slide the scraped faces of these bars (covers) on the frames longitudinally, commencing from the ends of the frames. In this way not a bee remains between the tops of the frames and the cover; for when sliding the bees (if any) are pushed away. I found this last method of covering bees to be the most economical and the safest. The use of smoke for driving bees down from the tops of the frames is obviated. I find that it is desirable to make use of smoke as seldom as possible.

MY WAY OF MANUFACTURING COMB FOUNDATION.

Within twenty-nine years I have received three comb-foundation machines. According to my idea I have made a step forward in the manufacture of foundation. I make use of sheet glass (strips of ordinary window pane) dippers instead of sandpapered wooden dippers. So I save the trouble of sandpapering the wood, and I get better and more even sheets. Another advantage of the glass dippers is that glass cools quickly. In case, through a mistake, the wax sticks to the glass, I immediately clean it with a very small piece of linen soaked in a solution of carbonate of soda. For melting the wax I make use of a tall enameled vessel. I put into this vessel about three inches of water, and over this water I put the wax and set it on a petroleum-stove. When the wax has melted I reduce the flame of the stove to such an extent as to keep the wax in liquid state, but below the boiling-point. All the impurities, if any, settle down into the water. Then I wet the glasses and dip them one by one into the liquid wax. I repeat this dipping three or four times just to get the sheets of wax sufficiently thick for passing them through the rollers of the machine. Before putting the wax sheets through the rollers I dip them in water, warmed to about 90 F., until the sheets become sufficiently soft. I find it is essential that the rollers should be cool and the wax just warm—i. e., soft enough to get the desired even and thin comb foundation.

Of course I starch the rollers before using. By using these glass dippers, and following the printed instructions sent to me with my comb-foundation machines, I have been successful in manufacturing the thinnest possible and finest comb foundation.

Nicosia, Island of Cyprus, Dec. 19.

To be continued.

[We are glad that our correspondent, after having served for many years as a government official, has now the leisure to return to bees and beekeeping. He is now training his six sons in apiculture, and also in sericulture (the growing of silkworms). The young men are now contemplating starting a series of out-apiaries, and they are expecting to equip them with American hives and fixtures. They already occupy an important position in the beekeeping interests of the island of Cyprus, and are the only rearers and exporters of Cyprian queens there.—Ed.]

THE QUESTION OF ALFALFA HONEY IN THE EAST

BY WESLEY FOSTER

Mr. Crane has drawn the inference that it would be better if all Western honey were marketed in the extracted form, and that alfalfa honey granulates more quickly than Eastern honey—April 15, p. 224. As to the first proposition, I will say that the time is a long way off when all Western honey will be extracted. The past season, extracted-honey production was overdone in the West, and comb-honey production fell short of the demand. There is one fact regarding Western honey that all readers should thoroughly understand. Pure alfalfa comb honey will scarcely granulate at all. The case of comb honey that was awarded first place at the exhibit of the National convention in Denver a few years ago was two years old, and showed no signs of granulation. I think that Dr. Miller was one of the judges. There are many carloads of pure alfalfa honey produced in Idaho, Montana, Wyoming, Utah, Colorado, Nevada, Arizona, and New Mexico; and if in the comb this honey will show hardly any signs of granulation within a year. But we also produce a large amount of honey from sweet clover, alfalfa, clover, and wild flowers mixed. This honey will granulate sooner, so should be on the market early, and should be consumed before the holidays. I will make this point of early marketing of this comb honey as strong as possible.

Alfalfa extracted honey will granulate readily into a hard white "cheese," and it would doubtless pay to develop a market for this article; but the educational campaign necessary will cost money.

Western honey has developed a market for itself. I should like to have the opinion of the largest buyers of Western honey as to why it has stolen a place in Eastern markets, commanding 25 cents a pound. If Western honey can capture such a market it must have pretty good quality back of it. Perhaps the fact that Western honey can be secured by the carload, and the dealer is able to supply a more uniform grade and style of package throughout the year may have some effect in giving it the preference.

There is one thing that I noticed in the Chicago market, and that is that Western honey is produced in the standard section almost altogether, and marketed in single and double tier cases, while I saw Eastern and Middle Western honey in four or five different sizes of sections, and as many different kinds of shipping-cases, with no standard grading rules. I do not think that the markets can be injured by having honey supplied at all times of the year, and that is what the West has partly helped to do. We are not perfect here in the West. We have the problem of poor grading, and some of it dishonest in its methods, but the West is not alone in this latter particular.

As long as we are selling our honey under the competitive system there will be more or less clashing; but there is room for all who can produce the article that the market demands. And I do not believe that it will be so difficult to secure national grading rules. We shall then have honey-grading schools conducted at all of the conventions and bee meetings, and the unity of the methods and interpretation of the rules will correspond all over the country.

Boulder, Colo.

Oregon Fruit-men Planning to Keep Bees for Pollenation of Fruit-trees

There is a good prospect for a good crop of fruit here. If favorable weather conditions continue the colonies will be strong for next spring.

Most of our orchard men are going to install a few colonies of bees in their orchards in order to pollenize the fruit. They are just beginning to find out that they can not raise fruit without the honeybee. I wish all the rest of the farmers would do the same throughout the whole country. Then we could call this the land of honey and plenty of money.

The Dalles, Oregon.

JOHN PASHEK.

Heads of Grain from Different Fields

Tendency to Revert Back to Black in Color; the Origin of Foul Brood

1. Is not the honeybee of America a dark bee? and have not all other yellow imported queens a tendency to produce bees that become dark after several generations, irrespective of meeting with dark drones? I mean, is it not a continental tendency, as the black man is to Africa and the yellow to Asia?

2. Is not foul brood caused by *condition* as well as by *contagion*, the same as diphtheria in the human? A queen run to her utmost limit in egg-laying naturally becomes low in vitality. Her brood fails to develop—dies, and becomes foul. The same holds good in poultry run at high pressure, and handled under artificial conditions.

Slate River, Ont., Can., Jan. 8. J. M. MUNRO.

[1. The native bees found in this country in the early days were black—very similar to and perhaps identical with the German black bees, but probably somewhat different from the black bees of Great Britain. At the present time Italians predominate largely in many localities, especially where bees are kept in modern hives. But there are certain localities where black bees are the only race to be found.

The extra-yellow Italians that have been bred for color have a tendency to revert back to the original type. In southern Italy the bees are yellower than those in the northern part of that country. If the original type was leather-colored, then the yellow strain will show a tendency to revert to the leather color—that is, of course, supposing no effort is made to breed from yellow drones and light-colored queens. But in many localities Italians will cross with the native black bees. In such cases we have a hybrid of two races. If the predominant bee in any locality is a native black bee, then any other race on the yellow order introduced would, in a short time, become so much crossed with the black strain that we would have nothing but black bees. We do not believe that the habitat has any thing to do with the color of bees; but the blacks are more persistent—that is to say, they have greater power to force their way into new territory than the Italians have.

2. Strictly speaking, foul brood or any germinal disease is not caused by condition; but a condition may be such that a disease finds a more ready lodgment if the germs of the disease are *already present*. Speaking more specifically, no amount of rotten brood caused by chilling or overheating will develop into foul brood. But rotten matter, or bees in a weakened condition, if they do not properly take care of the brood, might help the propagation of disease already present in the form of spores when a healthy colony or well-fed brood would throw it off. In the human family a healthy individual will resist disease much better than one who is all "run down," and the same general rule applies to bees. Let it be clearly understood that corn will not grow where no corn has been planted; neither can disease develop, no matter how favorable the surrounding conditions, when no disease germs are present. This fact has been conclusively proven.—Ed.]

Can Increase and a Honey Crop Both be Secured at the Same Time?

I have been a subscriber to GLEANINGS for a number of years, and have learned many things from it that have been of value to me in beekeeping. I have nearly all of the books you publish on beekeeping, but can not find exactly what I want on increase. My conditions are as follows: I have one hundred colonies in two yards. Practically my whole surplus honey is from clover and basswood. I run my bees on the Alexander plan for honey, and have no swarming to speak of. Our honey, coming as early

as it does, I do not care to increase by the Alexander plan. I wish to double my number without decreasing my honey crop. I have plenty of hives and foundation. Would I succeed if, instead of placing the brood above the excluder, I would take one frame of brood with the queen, one frame of honey, and one empty comb, and start a nucleus from each strong colony, giving each old stand a young queen in two or three days?

Spring Green, Wis., Jan. 7. G. H. PECK.

[It is practically impossible to double your number of colonies without decreasing your honey crop; that is to say, you can not double the colonies and produce a honey crop both at the same time. You can make increase, but at the expense of your crop. You can, however, do this: Run your colonies in the regular way; get them as strong as possible, produce the crop, and then, after the crop has been secured, divide and build up the nuclei by feeding. The plan you propose would be perfectly feasible. Of course, you need to bear in mind that, after the honey-flow, and the crop has been secured, the robbers are inclined to cause more or less trouble; and in the feeding you will need to exercise more than ordinary precaution to prevent robbing.—Ed.]

Warm Weather Causing Much Brood-rearing in the South

In the fall I fed my bees about 15 pounds of sugar syrup, made a little less than three parts of sugar and one of water. They had the hives practically full of good sealed stores the last of November; but every warm spell I could notice that they were raising young bees, from the fact that they would bring out some dead ones after we had had a cold snap, and this I suppose to be chilled brood.

I wrapped my hives well with old newspapers, and then covered them on the outside with three-ply roofing paper. On the 6th of January I noticed the bees bringing in some pollen; and every warm day that we have I notice that this pollen increases considerably—that is, the bees seem to bring it in more freely. On Sunday, Jan. 19, I noticed that they were coming in with quantities of pollen, and working as in summer time. I could not imagine where this came from, so I hitched up my horse and drove to the country, and found that it was coming from the alder, of which we have an abundance.

Now, what I want to know is, will not this pollen coming in start them to raising brood very freely during this warm weather? and when they consume what stores they have in rearing the brood, if we have cold weather in February (which we generally do) are they not liable to starve? I can feed the bees during warm days; but I do not know whether to feed them with thin or thick syrup at this time of the year. Our weather here is very warm. Some days the thermometer stands at 75, and we have had but very little freezing weather. Our hives are running over with bees, and we do not want to lose them.

Kinston, N. C., Jan. 21.

J. W. BLACK.

[During a warm open winter such as we have been having, bees in the South will rear a considerable amount of brood provided they can secure natural pollen, and they will do a good deal of brood-rearing, oftentimes, without natural pollen coming in, if there is pollen in the hives, which is generally the case. As you surmise, there is danger in such cases that the bees will use up their stores to such a point that starvation will follow. If you fed your bees 15 pounds of thick sugar syrup, as explained, so that the hives were practically full the last of November, we feel quite certain that there will be enough to carry them through until spring.

We advise the examination of a few colonies; then, after making the examination, "heft" the hives so as to make a note of its weight. By thus "hefting" the other colonies of the yard you will be able to form an idea of their relative amount of stores. If there is danger of your having cold weather in February we would advise, in case it is necessary to feed, a thick syrup about the same as you fed them last fall. If it should be too cold to feed, give them candy, made as directed in the A B C and X Y Z of Bee Culture; but in the kind of weather you have been having, there will be no trouble about feeding a sugar syrup.—Ed.]

The Warm Winter Weather Causing Bees to Fly and Rear Brood

Is it dangerous to permit the bees to fly at this time of the year? I presume not, from what I have gathered by reading; and, in fact, it is practically impossible to keep them in the hive, inasmuch as we have had spring weather since Christmas. The three first weeks of January have been like April here in Washington. Yesterday, the 19th, I noticed a number of my bees having pollen on their legs. Where they secured it is a mystery to me; but yet it is a fact that they were gathering, to a small degree. I believe this is a remarkable record for January. Last year we had "bitter" weather at this time of the year; in fact, all of January and part of February was such weather as to cause the thermometer to register around zero, or from 10 to 15 degrees above, for nearly two weeks or more.

Is there any thing you can suggest as to ascertaining whether the stores are sufficient to carry the bees through to spring? The hives are all closed up, packed, and the packing covered with oilcloth, and hence I can not open them; but I thought you might have a suggestion to make as to how to ascertain whether the stores are sufficient, or how to save any weak colonies should their stores be low. Perhaps you can advise as to whether there is a method of feeding bees at this time of the year; but inasmuch as the bees are coming in and going out as if they were in a healthy condition, I presume there is nothing to do but let matters rest as they are with my colonies until spring.

Washington, D. C., Jan. 20. E. E. VROOMAN.

[You can not prevent bees from flying when the weather is suitable; in fact, it is better that they should. We refer you to the reply to J. W. Black, above, for Mr. Black is located in about the same kind of climate.—Ed.]

Unlawful to Ship Diseased Bees from One Locality to Another

Please inform me regarding the necessity of having bees inspected prior to moving them from one State to another. I wish to move mine next spring before the honey-flow will warrant inspection without robbing. Do you mean to say in the A B C and X Y Z of Bee Culture that no bees can be shipped with safety while there is the least bit of foul brood present? It seems to me that, if the few colonies were cleaned up, they would be permitted.

Idaho.

SUBSCRIBER.

[Under your foul-brood law you would not be permitted to ship bees from one locality to another in your State until they had been inspected by the State foul-brood inspector or his duly authorized agent. They could easily be inspected before the honey-flow; but perhaps you mean you desire to have them moved before warm weather sets in, so that the brood of the colonies could be examined to see whether it contained any diseased matter. There probably would be no brood at that time.

It is not safe nor wise to try to ship colonies of bees that contain infection, be it ever so small an

amount. If a single cell shows diseased matter we would not ship the colony, because a single cell may develop into a rotten condition throughout the entire colony.—Ed.]

A Good Record in Favor of the Danzenbaker Section as a Globe Trotter

Early in September I was commissioned by the Provincial Department of Agriculture to prepare an exhibit of honey, etc., for the agricultural fairs of Victoria, Vancouver Island, and New Westminster on the mainland of British Columbia and for the dry-farming congress, Lethbridge, Alberta.

The comb honey was in 4 x 5 x 1½ Danzenbaker sections; and I think, taking into consideration the miles traveled (about 1800), and that the combs were handled from wharf to railroad depots, from depots to wagons something like thirty times, and yet arrived back to Victoria without a section, comb, or single cell being damaged, is a wonderful record.

The sections were packed 1½ in a glass-fronted crate, 3½ inches wide, about ¼ inch play at sides and ends, one layer of sheet cotton batting on bottom and top of sections, and lid nailed on. The crates were packed four in a used candy-box, two deep and two wide, glass fronts toward each other, with sheet of corrugated paper between. On the bottom of the box were two inches of excelsior. Between the two tiers of crates was one inch of excelsior, and two inches of the same packing on top of all. Between the sides and ends of the crates and the sides of the box were three inches of excelsior, all packed as solid as hands could pack it. There was much doubt as to results when the final trip home of 800 miles by freight, which took 21 days on account of an accident on rail, was started; but every thing arrived in good condition—no shake in the big box, not a glass or comb broken, nor a cell of honey leaking. The sections were all selected for exhibition purposes. The combs were well filled, and attached right to the edge of the sections. These were displayed in glass-covered trays holding 24 sections, presenting one solid slab of snow-white honey 24 x 30 inches, and were the admiration of all who saw them.

Now for the secret of success. The combs were one solid mass, with no empty spaces as with beey sections, no shake in crate, excelsior packed firm; just sufficient spring to receive concussion of rough handling, but resiliency to resume its former position before the shock.

TABLE OF DISTANCES COVERED.

Comb honey moved from ranch to railroad station at Shanrigan Lake by row boat	1 mile
Shanrigan Lake to Victoria by rail.....	28 "
Depot to house by team.....	1 "
House to Victoria exhibition by team....	3 "
Victoria exhibition to Canadian Pacific railway wharf by team.....	3 "
Boat to Vancouver.....	75 "
Vancouver wharf to depot by team.....	1½ "
Vancouver to New Westminster by rail....	12 "
From depot to fairgrounds by team.....	1½ "
From New Westminster to Lethbridge by rail.....	790 "
From depot to fairground by team.....	1 "
From fairgrounds to depot by team.....	1 "
From Lethbridge to Vancouver by rail....	800 "
Vancouver to Victoria by boat.....	75 "
Wharf to house, by express.....	1 "

Total1794 miles

About 30 handlings took place.

About 100 jars of extracted honey were packed in excelsior; not one broke.

It is very different with straw, so frequently used in comb-honey packing. Straw, when once flattened, remains so to a certain extent, and leaves too much

space for the comb honey to shake about. In moving bees from place to place in wagons, I always use hay, as it is much more resilient than straw.

E. F. ROBINSON.

Victoria, British Columbia, Canada, Nov. 27.

Would Albuminized Sugar as Feed and Substitute for Pollen be Practical?

In reading the article, "The Physiological Effect of Feeding Sugar," p. 817, Dec. 15, the thought came to me, "Why not feed albumen?" If pollen, which is so rich in albumen, is so essential to brood-rearing, why not feed albumen in a concentrated form? A substitute for pollen would be hard to find; but the white of an egg is rich in albumen. To the beaten whites of eggs add pulverized sugar until it forms a soft mass about the consistency of dough, and feed as you would hard candy or fondant, or add the beaten egg to sugar syrup previously cooled so as not to cook the egg, and feed in any of the various feeders. Feed this albuminized sugar or syrup in early spring to prevent spring dwindling, and to encourage brood-rearing.

Now I am only a novice at beekeeping, chickens being my hobby. The laying hen must be supplied with an abundance of protein and other foods essential to egg production. According to Dr. U. Kramer, pollen (albumen) is essential to brood-rearing, and the bees' welfare in general.

I have never tried this albuminized sugar or syrup feed. It is only a thought which came to me while reading Dr. Kramer's article. Do you know of its being tried? Do you think it practical?

Kansas City, Mo.

MRS. H. MILLARD.

[Bees can usually obtain natural pollen as soon as the weather is safe for extensive brood-rearing; but under conditions where the natural pollen is too scarce we think the feeding of some such substitute as rye meal out of doors would be much cheaper and more satisfactory than the expensive white of eggs, even if the latter would supply all the elements needed—a supposition which we doubt.—ED.]

How Much has Location to do with Success in Working Bees for Honey?

Two years ago I sold some of my land in South Carolina, and in casting about for an investment I decided to move to Georgia, within eight miles of Augusta, where I could engage in the trucking business and also work my bees for honey. I practically had to give up queen-breeding on account of not having help at that time. I found the best roads around and near Augusta that I had ever seen. The land for six miles out is a black loam; but after passing these six miles we come to high dry sandy soil, with a scrawny growth of oak and long-leaf pine, identical with many lands in Florida. We finally decided to locate on a hill about a mile long, where the atmosphere is dry and pure.

When I moved I brought 20 or 25 colonies of my best strain of Italian bees, and some of these were taken off the wagon and placed directly on the ground without even a bottom-board. The bees have not been harmed by ants or other insects. I have never seen ants disturb a colony, notwithstanding many are in this soil. I thought from all appearances the territory around would be good for bees; but I have been here now two seasons—one a very dry year, and the other wet and seasonable throughout the year, and a large portion of the time too wet. Although there were many ideal days, both in spring and summer, I have secured but little honey, even extracted, for I do not work for comb honey. The cotton failed to produce honey here this season, and also the asters and goldenrod; and yet there were times when I thought conditions were ideal.

I can not account for this, except by climatic influences. There are swamps and the Savannah River within five or six miles. I write to give my fellow readers this experience, and to show that there must be about as much in location as any thing else; and it may be that some can account for the conditions here by some other theory.

I note that the shipping of bees by the pound from the South is recommended in order to build up weak colonies north. This is practical and profitable. Several years ago, when I commenced shipping bees and mailing queens, we shipped a good many bees by the pound; but for some reason it was discontinued, and the nucleus system took its place. Last year I shipped a few cages of bees to Canada with perfect success, and would have shipped a good many to the party; but in the mean time they sold out their bees and ordered shipments discontinued. The cages manufactured are well adapted to this purpose. While I did not get much honey this year, my bees are in fine condition for the coming spring.

Augusta, Ga., Dec. 31.

J. D. FOOSHE.

[Mr. J. D. Fooshe is one of the most experienced queen-breeders in the country. Our older readers will recognize him as the man who was able to raise such fine stock in the days gone by. In the last few years he has somewhat dropped out of sight, and the letter above explains why. If there is any man who can make a success of shipping bees in pound lots, Mr. Fooshe would be the man to do it.—ED.]

"Bulk Comb Honey" or "Chunk Honey"? which is the More Distinctive Expression?

I note that your Texas correspondent is very anxious that the term "chunk honey" be dropped, and "bulk comb honey" be substituted. "Bulk comb honey" is descriptive, but not more so than the less cumbersome term "chunk honey," and is misleading when applied to a mass of chunk honey with a quantity of extracted honey to fill up the spaces. His plea that the product originated in Texas would indicate a greater antiquity for the honey industry in that State than most of us were aware of.

Before we heard much about Texas as bee territory I produced and sold considerable quantities of chunk honey in Iowa; and about 1856, when I was not more than four years of age, I ate chunk honey in Illinois, and I distinctly remember the flavor of sulphur, which proclaimed the process by which it was commonly obtained in those days, viz., by smoking the bees to death, "taking up a hive" and cutting out the chunks.

But the product is evidently older yet, for it must have been chunk honey which Samson took from the carcass of the lion, and that, if I remember correctly, was several years before Texas was annexed to the United States.

BURDETT HASSETT.

Alamogordo, New Mexico, Nov. 21.

[There is considerable truth in what our correspondent says, and ordinarily we prefer the shorter term; yet, on the other hand, it is true, we think, that there should be a distinction made between the modern "comb honey in bulk" and the old-fashioned "chunk honey" obtained by sulphuring the bees. We ourselves are inclined to agree with Mr. Scholl, therefore, as we feel that bulk comb honey is really the more distinctive and dignified term.—ED.]

Why Not Send Pound Packages of Bees by Parcel Post?

Referring to the editorial, Dec. 15, p. 787, regarding pound packages of bees from the South to the North, I wish to say that it is the greatest plan ever promulgated. One of the best things about this business is that the packages of bees are young ones, and, consequently, will live longer than the wintered bees,

and they will be worth as much to the northern man as twice the number of wintered bees. Yes, it is a success. I have sent hundreds. I am able to guarantee safe arrival and satisfaction on packages when a queen is with them. They do not always go through as safely when they have no queen. I have 550 queen-mating boxes, and 500 full colonies to produce bees and honey, and an excellent southern location. I can send out 500 or more packages of bees a month after April 15. Why can't they be sent by parcel post?

Fitzpatrick, Ala., Jan. 3. W. D. ACHORD.

[We have looked up the parcel-post ruling, and it seems to us very clear that bees can not be sent in regular pound and half-pound packages. A modification of the ruling may be made for us later. However, ruling or no ruling, we believe it would be unwise for the average beekeeper to undertake to ship bees by parcel post. This new old method needs to be tested a little more before it can be considered safe to undertake it. About thirty-five years ago an ignoramus undertook to send about $\frac{1}{2}$ lb. of bees in a paper box by mail. They got loose, of course, in the mail-car, and stung the employees. The result was a ruling that tarred even queen-bees with their attendants from the mails. It was a matter of a year or two, coupled with a good deal of hard work on the part of Prof. A. J. Cook, now of California, and others before the ruling was rescinded. See GLEANINGS, page 106, for March, 1880. It would be folly to repeat this experience, and for that reason we urge the importance of waiting until we have a combless cage perfected. Then we can go to the Postoffice Department and show what we can do, and probably secure a ruling in our favor.—ED.]

Double Wire Cloth for Better Ventilation in Combless Bee-package

I have made only one trial shipment of a package of bees without comb, sending a pound of bees confined to the package 46 hours with only three dead bees at the end of that time. I made the package $4 \times 6 \times 8$, of $\frac{3}{8}$ -inch square stuff with one fence-like piece through the center for the bees to cluster on. After making the frames of the $\frac{3}{8}$ stuff, 4×8 , I covered both sides with wire cloth. This gives a space between the wire cloth of $\frac{3}{8}$ inch for air, if there should be other packages piled on or over the bees. I then nailed on the bottom and two strips $\frac{3}{4} \times \frac{1}{2}$ to form the ends, which I also covered on both sides with wire cloth. The candy cage is fastened on the floor. Then I cut a piece of heavy felt about 6×6 inches. I waxed the floor well where I placed the felt. This felt I soaked in water, then tacked it to the waxed part of the floor.

For the cover I bored four two-inch holes, and covered them with wire cloth except one through which I shook the bees. I covered this with wire cloth. On this cover I fastened a convenient handle for the railroad men to use in lifting the package. I also put a strip of paper on the cover, with the following directions: "Live bees. Do not cover tightly. No handling if handled reasonably."

Hartville, O., Nov. 5. J. A. KREIGHBAUM.

[Double wire cloth, the same as is used in ordinary queen-cages, is hardly sufficient protection. Single wire cloth, with a wooden grating, is better, in our judgment. Packages that go by express or parcel post should be so protected that the sharp corners of the box or other articles will not punch through and ruin the contents. In the case of a package containing bees, even a small hole would cause no end of trouble, to say nothing of the loss of bees. The wooden gratings that we recommend are narrow slats about $\frac{3}{4} \times \frac{1}{4}$ inch thick. In the case of larger packages, the strips should be $\frac{1}{2}$ or even heavier.—ED.]

How Does the Queen Face when Laying?

I have been waiting patiently to see whether some one of the lynx-eyed American bee-students would not point out a peculiarity in the piece of comb illustrated on page 657, Oct. 15. The cells are built with two sides horizontal. Very unorthodox of the bees! You are scientifically cautious, Mr. Editor, when you remark on page 647 that "it is safe to say that a queen while she is laying an egg *usually* has her head toward the upper part of the comb;" but I can not agree with you, after all. I have had two or more observatories in constant use for the last three or four summers, and we have often watched the laying of the queens. Whatever attitude she may be in when she inserts her abdomen into the cell, she almost invariably twists round before the actual process of laying is performed, in such a way that her head is toward the *lower* part of the comb. As a rule, too, she is not looking right downward, but has her head turned slightly toward the end of the frame to her right.

Perhaps you will allow me to express my keen appreciation of GLEANINGS, and the way it is conducted. I begin almost to be personally acquainted with the editors and some of the contributors, and I just love the kindly way in which they sit upon each other when one has been caught napping. I am glad to see that you have a due appreciation of Mr. Sladen. So far as I can see, he should never have been allowed to go to America. There, now!

JOHN ANDERSON, M. A., B. Sc.

Stornoway, Scotland.

[We have examined many pieces of naturally built comb, and have found that, while the two parallel sides are usually vertical, still there are a number of exceptions. We may say, then, that naturally built comb of both types is found, but that the predominating type is that in which the two parallel sides are vertical.

Concerning the position of the queen when she is laying, there are so many exceptions to any one rule that perhaps we put the matter a little too strong, even in our general statement to which you refer. Two of our queen-breeders agreed that the queen usually has her head toward the top. However, if we are not correct in this we shall be glad to know it.—ED.]

Exhibits at the Oklahoma State Fair

We noticed your error in the display picture on p. 811, Dec. 15; also your correction on editorial page, Jan. 1, with Mr. Van De Mark's letter quoted therein. The only part of Mr. V.'s letter to which we could possibly take exception is his statement that "there were four others nearly as good," and presumes he means to include our own exhibit in the four.

The records of the State Fair Association will show that of the nineteen classes offered for bees, honey, wax, and allied products, we entered seventeen, winning a ribbon in every class we entered, getting nine firsts. The other firsts were awarded, five to Mr. Bartholomew, four to Mr. Crouch, and one to Mr. Burrage. After winning as many firsts as any other two exhibitors in as big a honey show as this, we dislike very much to be placed in the "also ran" class.

Noble, Okla., Jan. 10.

GAREE & GAREE.

Danger of a Lack of Stores Toward Spring

Bees are wintering finely. Some beekeepers will be troubled toward spring by a shortage of winter supply of honey in colonies. Clover is very promising up to date. A good stand of white clover is to be seen in every pasture and field in which it is allowed to grow. The season of 1913 promises to be a good one in my locality.

Unionville, Mo., Jan. 24.

FRED H. DRURY.

Our Homes

A. I. ROOT

To him that overcometh will I give to eat of the tree of life, which is in the midst of the paradise of God.—REV. 2:7.

Do ye not yet understand, neither remember the five loaves of the five thousand, and how many baskets ye took up? neither the seven loaves of the four thousand, and how many baskets ye took up?—MATT. 16:9, 10.

(A sequel to the *Home Papers* in the Jan. 15th issue.)

In the second and third chapter of Revelation there are some glorious and wonderful promises to those who "overcome." I wish the readers of GLEANINGS would look them up. I have chosen one of them for my text for this Home paper; and as I dictate here the first page of that Home paper (that was lost) I do it to illustrate how many times in this busy life it is necessary to exercise great patience and perseverance, and holding on. Huber has explained that it was the intention of the Root Company to send me a dictaphone in order to help me to keep up my Home Papers while I was in Florida during the winter. I was told arrangements were made so the dictaphone would probably be here early in November about as soon as we arrived; but after going to the express office again and again, and not finding any thing of the dictaphone, I wrote to Huber. He replied, and said he supposed it had been sent promptly long ago. This was somewhere about the first of December. The company, however, without giving any explanation of their remissness, finally wrote that they had finally forwarded the dictaphone to my address. Then I commenced going to the express office again and again, inquiring for something for A. I. Root. Being told continually that there was nothing, I finally, one day, remonstrated. I said, "Look here, friends, a dictaphone has been shipped to me from Cleveland. It is an instrument worth something like \$100 or more, and it is in a large box, and it seems to me it *must* be here somewhere."

At this the agent replied, "Oh! it's a big box that you wanted, is it? Well, I remember there is something of this sort here, after all, and it has been here some time."

When he hunted it up he found it was directed to The A. I. Root Co. instead of to A. I. Root, and this gave him an excuse for saying, over and over again, there was nothing for me. I got the box home as soon as possible; and then, in order to be sure that the instrument was not injured in any way, I unpacked it very carefully myself, looking all the while for some directions for setting it up and handling it. Not a scrap of any thing could be found; neither was there a

mouthpiece anywhere in the package to use for dictation. I wrote a remonstrance to Huber, and he said something like this: "As the machine was expensive and complicated, the manufacturers never had furnished printed directions for use, but they always sent a man along to instruct the purchaser how to operate and see that he got along all right." As they had already sold the A. I. Root Company several machines, they probably supposed that every member of the firm ought to know how to use them. And this, in fact, is true. Several times last summer Huber did remind me that if I was going to use a dictaphone down in Florida I had better come into the office and practice on it awhile; but I was so busy in building that bungalow that it was put off and neglected. It is true, however, that I did have one down here a year ago, and under Ernest's tuition I dictated a little matter on it. The fact is, I somehow dreaded using the machine, feeling a sort of embarrassment talking to a piece of "machinery" instead of talking to my long-time friend and standby, W. P. Root, who has for so many years taken down all of my dictation. My correspondence was already far behind. I had a lot of things that I wanted to say to my readers since coming here to Florida, and it was of the greatest importance that the dictaphone be got in trim. Perhaps I might explain right here that for many years past it has been a very hard matter for me to use my right arm and do much writing. I can drive nails and hoe corn and "fuss with chickens" all right; but when I come to get a pen or pencil in my right hand and sit down to the desk, there is a sort of writer's paralysis that has troubled me more or less for forty years. There was no way but to "cipher out" how to use the complicated instrument, even if I did feel much hesitation in undertaking to pull to pieces any thing so complicated and difficult. I was tempted many times to give it up; but then I recalled how it spoiled my enthusiasm and energy to acknowledge myself defeated in any praiseworthy undertaking. It really *hurts* me, and for that matter it hurts *anybody*, to acknowledge himself defeated, and give up in something that really *ought* to be done. Under the circumstances the dictaphone seemed to be almost the only outlet that would permit me to keep up my department of the journal, and was almost the only way to continue to lend a helping hand to those who love poultry, high-pressure gardening, and

the different branches that I have been so long writing. Perhaps I may confess to you that I prayed over the matter again and again, asking the dear Lord to give me back the skilled and expert use of that right hand for just a little while. I thought of the little couplet:

Backward, turn backward,
O time, in thy flight;
Make me a child again
Just for to-night.

Will our readers now turn to page 68, GLEANINGS for Jan. 15? * The broken cylinder must evidently have cut short a part of that concluding sentence, and Huber ended it for me, for I had the speaking-tube already in my hand but could get only a faint response. I recalled that in our Medina home office I frequently heard the girls listening to the dictaphone when it could be heard plainly several feet away from them; and I knelt down as I told you, and asked the dear Lord to show me how to make the machine speak as plainly as it did back in my Medina home. Some of you may feel inclined to smile at my faith that my prayer would be answered. Perhaps I can make it sound a little more reasonable to you with this explanation. After having *prayed* over things I often seem to be impressed to examine more thoroughly in certain directions that I had failed to notice critically before. After getting up, or as soon as I arose, I felt impressed to get Huber's letter of instructions, and go over it a little more carefully and see if I could not find some clue to the trouble there. I saw now almost at once where he told me to pull a certain lever over toward me when I wanted to dictate. Now, as this lever could not come over toward me because there was a steel post or stud in the way that seemed immovable, I concluded that he must have made a mistake, and he meant to push it *from* me instead of pulling it toward me. At this time, however, I grasped hold of that little steel post once more, and finally found that I could turn it around; and after pulling a little harder I found it slipped back out of the way. Mrs. Root came over just at this time, and I told her we might rejoice, for my troubles were over. She replied, "Are you very sure?"

"Yes, I'm sure that my prayer is answered."

Once more I started up and called out "Helloa! helloa!" and the response came like an echo so plainly that it could be

heard all over the room. Through the dictaphone I thanked God for having delivered me out of my troubles, and finally ended by singing an old favorite hymn. I am going to give you one verse right here of that old hymn, dear friends. I wish it were *possible* for you to hear my voice as well as read the words in print. Perhaps it will be possible in time to come, as our good friend Edison is just now at work on something quite similar.

Oh to grace how great a debtor
Daily I'm constrained to be!
Let thy goodness, like a fetter,
Bind my wandering heart to thee.

The words came back full and clear, and seemed like a benediction.

Two or three years ago our people in Medina sent word to me, while down here in Florida, that they wanted me to employ the best artist I could find and get a good picture of myself to be put into GLEANINGS. I kept putting it off, but finally they urged so that I went to work to get a disagreeable duty off my mind. First, I went to a good barber and told him I wanted him to take plenty of time and fix me up in the best style he could so that I could have a picture taken to put in print. He was an *Englishman*, and was (therefore?) in the *habit* of doing good and faithful work. Then I went to the photographer and told him something the same thing. He took, perhaps, half a dozen pictures, and then touched them up with all the skill he possessed, and submitted one of them to me for my approval. Now, I was greatly rejoiced to find out that he had made a real good-looking man of my poor old self. In fact, it was so much better looking than I am really that my friends and relatives all said that it didn't look like me, and on this account it never was given in GLEANINGS; but I always felt bad about it. May be I can give it to you yet if some of you care enough about the matter.

But now in regard to the dictaphone. Mrs. Root declared right away that it was beautifully clear, but that the voice didn't sound like mine at all, and I agreed with her. I told her that I should never know that it was my voice. In fact, I never before was aware that I had a voice of so much volume and strength. Now please, dear friends, don't think me presuming or puffed up when I say that, after the kind words which have come to me all these years from the readers of GLEANINGS in regard to my allotted work in this world, it occurs to me that it might be a pleasure for the readers of GLEANINGS to hear my voice. Well, I don't know just how it is going to

* There is also a period in the wrong place on p. 67, toward the close of the page. Instead of "He applied to the Savior again and again," it should be, "He applied to the Savior again. And again the Master," etc.

be brought about; but I have faith to believe that the time is coming when God will give us the means of talking to friends thousands of miles away, great numbers of them; that he will also give some invention to enable the readers to hear the tones of our voice when they are reading the printed words. This thing has already come to pass to a certain extent, for I suppose you are fully aware that these cylinders can be shipped thousands of miles, especially if they are carefully packed, and enable friends not only to review the words of all those we have read about and loved, but also to hear the very tones of voice of people who have been long years dead and laid in their graves. "Rejoice! May the Lord be praised for the victories of men."

Let us go over briefly the overcoming of difficulties before I could talk to you as I do now through this beautiful instrument. First, the order to ship it to my Florida home was overlooked or neglected. Second, after it was shipped the agent here at Bradentown kept telling me "Nothing for A. I. Root." When it finally came, there was no mouthpiece with which to dictate; and the carriage failed to move. When, after hard work and earnest prayer, I succeeded in overcoming this trouble, the machine wouldn't talk plainly and clearly. Finally, in answer to my prayer, I discovered that the little steel post that seemed to be riveted so firmly *could* be lifted back to let the lever come forward. Once more, in my triumph, after I succeeded in making it work to perfection, and had used up the cylinder in thanking and praising God for the victory, those cylinders were smashed by the express company in its transit to Medina. Perhaps I was somewhat at fault in my method of packing; but I had large printed labels pasted all over the package, saying, "Fragile, handle with care." The express agent or handlers, however, seemed to pay no attention to this caution.* Both of the first two packages were smashed and rendered almost useless. After we got it working so finely, Mrs. Root suggested that perhaps there was a *providence* in it after all; for had not all these troubles occurred I would not have been obliged to pull the machine all to pieces and study its construction so fully, so that now I was perfect master of every detail of the complicated apparatus. Yes, this is true; and this trying experience I have had is probably worth much more than all it cost. But now, dear

friends, comes a much greater and grander truth. In praying that I might have the wisdom to surmount the obstacles that lay before me I came into closer touch with my Savior than perhaps I had ever been before. In fact, for several days afterward it seemed as if a new companionship was with me, and by my side, no matter what I was doing. Scripture texts came to me in great numbers that I had never particularly noticed before, and seemed to shine out with a new and wondrous promise. I presume this experience will not only give me more faith, but will, perhaps, make the Bible promises brighter, many of them, for the rest of my life. For instance, I recalled the time when the disciples were worried because they thought the Master was reproving them for forgetting to bring bread. In one of our texts I have recalled the circumstance. He remonstrated with them for not having *remembered* how he fed the multitudes with the loaves and fishes, and for not remembering that all the resources of this *great universe* were at his beck and call. The man, woman, or child who has no difficulties or trials to overcome can never *arise* to his *fullest* and *greatest* and *grandest* development. "To him that overcometh I will give to eat of the tree of life, which is in the midst of the paradise of God."

POULTRY-KEEPING ON OUR CONVERGENT POULTRY-RANCH IN FLORIDA.

When we arrived here the first week in November my first work was to get our fifty pullets from my neighbor Abbott and install them on our place. The pullets remembered their old home of six months before, without question; for, the very first thing, they sought out their familiar scratching-places and places to roost, watering-places, etc. As they had scarcely finished moulting, for a few days we got very few eggs, perhaps only three or four to start with. As eggs, however, were forty cents a dozen the pullets very soon began to pay for their feed. At the present time (first week in January) we are getting from fifteen to twenty eggs. I might remark right here that eighteen ducks have given us about as many eggs as fifty pullets so far; and as the ducks get a large part of their feed from the canal I have spoken of, they are more profitable than chickens so far. With the fifty pullets was a three-year-old Buttercup rooster. He, too, was in the midst of a moult. I suppose it is not very good management to expect a three-year-old rooster to give eggs with very high fertility when given as many as fifty pul-

*I notice the U. S. Express Co. furnishes its agents a good-sized label, reading as follows: "Glass: with great care. Put this upon every package of glass." Now, the agent who would deliberately ruin a package thus labeled should be severely dealt with.

lets. Somehow or other, I got into the way of reasoning that the male bird didn't try to serve any more than the pullets that were laying. He is very quick to single out a hen that laid an egg and serve her; but does he serve or undertake to serve the others that don't lay at all—that is, where he has a yard full of pullets? I have hunted the poultry journals for years in regard to this, but have never been able to find a single thing touching the subject. Some of you may remember that I paid one dollar for a secret for getting strong fertility. The secret was this: Fix your nests or gate so that, when a hen has laid an egg, she will go into the yard where the male bird is confined; and as he, as a matter of course, serves her promptly as soon as she comes into his "harem," you would naturally suppose that the eggs would be all fertile. Now, this secret seemed to take the ground that the male bird serves only the laying hens. Well, my first hatch from the incubator that holds fifty eggs was only thirty eggs fertile. Thinking the trouble was because moulting was so near, I tried it again, putting in sixty eggs* for the first five days until testing time. Although the hens were mostly over their moult this time, I got only thirty fertile eggs from sixty. As I can't stand this sort of work I divided my hens into two yards, and have put a brisk young Buttercup rooster in the other half, and we expect better fertility accordingly.

I want to repeat again that I do not believe artificial heat is needed here in our Florida climate for brooders. Fireless brooders properly arranged are certainly all that can be needed for twenty-five or more chicks. I have taken two broods this winter right out of our hot incubator, of course keeping them there about twenty-four hours after they were hatched, and put them directly in the fireless brooder. The second day they would be out running in their little yard, and scratching the bran and sand with which the ground was covered. The next day they were climbing over the sides of the yard and rambling all over the brooder-house. I have repeatedly proved to my satisfaction that artificial heat has a debilitating effect upon the young chicks when they

are able to get along without it. The convergent poultry-yards are proving such a wonderful convenience I wonder how it is that people who keep poultry have been so long without thinking or discovering or getting on to this short cut in the management of poultry and poultry-houses. Think of having the poultry-houses scattered over four or five acres where they can just as well be all in one convergent yard! When the little chicks grow, you can let them out further and further, finally giving them the whole range as far as the fences go. Just now we are building the fences out only as far as the chickens seem to run. As they grow older we build the fences a little further—no cross-fences from one side to the other at all. In this way they can have almost unlimited range, and yet all the feeding and caring for them is done at one central spot. They are all shut up at night in no time at all, compared with the old plan of chasing all around to so many different houses. This inner court where we keep our grain and all our utensils is shut up so that it is almost an impossibility for a rat ever to gain access. There are no mice here; but I am sure it would be an easy matter to fence out mice with comparatively little expense in the far North if this plan is followed. By the aid of a windmill we have dripping water and suitable vessels between every two yards, so that the water takes care of itself comparatively. When the watering-dishes need to be washed out it can be done very quickly, as they are all right at hand, and easily pulled out of place.

INSURANCE COMPANIES AGAINST THE DRINK HABIT.

Insurance companies in Great Britain, America, Sweden, Norway, and Germany are discriminating against those who drink, even in moderation. The insurance companies in Germany have issued leaflets and posters showing the detrimental effects of alcohol on the human body. Many insurance companies place total abstainers in a separate division, insuring their lives on cheaper rates. It is manifestly unjust to require that total abstainers shall pay higher insurance rates on account of the losses caused by the drinkers insured by the same company. The discovery of science, that alcohol is a life-destroyer, is arousing many who heretofore have been uninterested in the temperance problem.—*Union Signal*.

Editor American Issue:—Some things you can send through the mail by parcel post are: Eggs, butter, meat, medicine, fruit-trees, oils, ink, candy, milk, or queen bees. Some things you can not send: Obscene literature, poison, snakes, explosives, infernal machines, pistols, disease germs, or intoxicating liquors of any kind. At last the government has made a wise and proper distinction. They are all of a kind.

L. R. H.

I wonder if L. R. H. isn't a beekeeper. Sounds like it.—A. I. R.

* Perhaps I should explain again how I get sixty eggs in a fifty-egg incubator. I do it by standing them on the small end for the first three days. With our bright Florida sunshine I can test them quite easily at three days, and Mrs. Root now agrees that such eggs, as a rule at least, are just as good as any three-day-old eggs for any purpose whatever; but, of course, we never sell them. Since dictating the above I have made two yards of my 50 hens, with a good male in each, and now I get about 50 fertiles out of the 60 eggs. The mother duck with her twelve ducklings flies over the two-foot fence every day, takes a swim in the canal, then comes back, and is a "model mother," even if she is an I. R. duck.

Cleanings in Bee Culture

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Editorial

No one can say, now, that women do not make good beekeepers.

THE NATIONAL CONVENTION FEB. 12, 13.

THIS was held at the Grand Hotel, Cincinnati. While the attendance was not large it was representative. At the first session it looked as if there might be an "irrepressible conflict." The delegates present were not agreed as to the best policy to pursue. But all is well that ends well, for the points of difference were referred to a committee, and the reports of this committee were finally agreed to. A brief report will be given later, together with a half-tone view showing the members and delegates present.

FEEDING HARD CANDY TO BEES.

WE have been giving paper pie-plates filled with hard candy to some of our colonies that seemed to be running a little short, for the last three months. This candy is made of twenty parts of sugar to one part of honey, the whole moistened with water enough so that it can be boiled. It is then heated to a temperature of 275 degrees Fahrenheit, and as soon as it reaches this point it is poured into the pie-plates mentioned. These are turned upside down right over the cluster, and so far they are giving excellent results. They are not affected by moisture, as Mr. A. C. Miller feared would be the case. Indeed, they preserve their shape perfectly, even when empty. As this winter has been somewhat open in most localities, there is danger of starvation.

Soft candy may be as good. We have tried it to some extent, but prefer the hard.

BEES ESCAPING FROM A BROKEN PACKAGE
MADE TROUBLE AMONG POSTAL CLERKS.

As we have intimated before, we have feared that some one not acquainted with the difficulties would attempt to send bees by parcel post, and that the cage would be broken and trouble be made at once. This is exactly what has happened. Just as our editorial form for the last issue was going to press, as mentioned briefly on page 106, we received a clipping from the San Francisco *Chronicle*, of Monday, Feb. 3, telling

of a lot of bees that took possession of a postoffice at San Rafael, on Feb. 2. Particulars were not given, except that, when the postal clerk opened the parcel-post pouch, the bees flew out of it, and stung him on the face and hands. The box in which they had been confined was smashed in transit, giving the bees the run of the mail-pouch, and, later on, of the postoffice.

As stated in our last issue, there seems to be no provision, at present, authorizing the shipment of bees by parcel post; and if the careless experiments along this line do not cease, there is danger that bees may be altogether barred from the mails, thus bringing about a serious state of affairs for queen-breeders and beekeepers as well.

IN MEMORIAM OF D. H. COGGSHALL.

It seems but a few weeks since we spent a very pleasant half-day with Mr. D. H. Coggsall the last time he was in Medina. We had met him several times before at conventions, but we became much better acquainted with him at this time, and it was with a shock, therefore, that we learned of his very sudden death as mentioned in our Feb. 15th issue. It seems that our friend had made all preparations for spending the winter in Florida, as was his custom. His home west of Groton had been closed for the winter, and every thing had been arranged for a long absence. How little anybody thought at the time that these preparations were then made for the last time, and that the departure was a final one, the return to the home-place to be only after death!

The party, consisting of Mr. and Mrs. Coggsall, and their daughter and her husband, Mr. H. J. Blanchard, had already left Groton, and had proceeded on their way south as far as Sayre, Pa. While waiting for the connecting train for the South at the Lehigh Valley station, Mr. Coggsall died very suddenly of heart failure. He had anticipated another pleasant winter at his southern home at Stuart, Fla., where he had spent every winter for eight years.

Mr. Coggsall was born Dec. 1, 1847, in

Groton, in which township he made his home all his life. He was a brother of W. L. Coggs; and although the latter has always been known as one of the most extensive beekeepers in the world, his brother was also extensively engaged in the business, having had at one time 800 colonies.

Although a quiet beekeeper, our friend was a progressive one, and we feel that the apicultural world has lost another pioneer. He was not a frequent contributor to the bee journals, and yet he will be missed—missed most by those who knew him best.

THE RELATIVE FOOD VALUE OF HONEY AND SUGAR-SYRUP STORES FOR BEES.

ELSEWHERE in the Canadian Department Mr. Byer makes the assertion that honey is superior to sugar stores, and then puts the proposition up to the editor.

During the 70's or 80's, we do not remember exactly when, R. L. Taylor, James Heddon, Prof. A. J. Cook, and, we believe, W. Z. Hutchinson, all of Michigan, each independently of the other, made some tests as to the relative value of sugar syrup and honey for wintering. The testimony of all the men, if our memory serves us correctly, was to the effect that, pound for pound, sugar syrup was much to be preferred to ordinary honey, and very much better than the ordinary dark or off-flavored fall honey. We had supposed that the whole beekeeping world had accepted this as a fact. For brood-rearing purposes honey has a slight advantage, because practically all honey contains minute quantities of pollen. In fact, Professor Brown, of the United States Bureau of Chemistry, once said that the source of many honeys is recognizable by the pollen grains when viewed under a microscope.

The primary reason for preferring sugar syrup is that it is less stimulating. A farinaceous diet on the other hand has a tendency to make the bees active when they ought to go into their winter sleep, or, as we say, into a semi-state of hibernation, or what amounts practically to suspended animation. In that condition respiration is low and the consumption of stores light. Sugar syrup of course has no pollen in it. It was shown in the 80's that the bees would eat anywhere from 10 to 50 per cent less of sugar stores than of natural stores during the winter, the percentage of variation depending on the quality of the honey. We do not go so far as to say that the presence or absence of pollen contributes to poor or good wintering. But when we come to draw the line between the two foods, the almost universal verdict has been in favor of sugar

syrup. On the other hand, it is generally considered that it is not necessary to extract good honey and feed sugar stores unless the difference in price between the two products warrants it. The extracting and feeding have a tendency to stir up a colony. Feeding in the fall with sugar or honey, especially if the queen is a young one, has a tendency to induce brood-rearing. Sometimes this is desirable, and sometimes not; so when we come to consider the relative food value of sugar and honey there are several factors to take into account.

Friend Byer, practically in opposition to all the rest of the fraternity, makes the statement, "I now *know* that at the very least it takes a pound of sugar to have that value." "That value," as we understand it, is a pound of honey. We do not say he is wrong, but we should like to have him present his proofs. Our correspondent's opinions we value; and when he challenges the editor and perhaps all orthodox beedom he is entitled to consideration.

A TRAMP BEEKEEPER SPREADING BEE DISEASE; AN AGGRAVATING CASE.

A MOST exasperating case has come to our notice of a certain tramp beekeeper, who, it is alleged, is moving bees by the carload from infested districts into localities where no disease exists. He seems to have no scruples about squatting an apiary of bees infected with European or American foul brood next to a healthy yard belonging to a permanent resident. When the locality becomes so rotten that even *he* can not stand it he moves to new territory, there to repeat his nefarious work. He practices migratory beekeeping on quite an extensive scale; and as he goes from one locality to another, it is said he takes no precaution to eliminate disease from his own bees; is careless about leaving tools and appliances, daubed with honey, after extracting, where all the bees in a locality can get at them, and thus carry the infected honey to their own hives. Numerous complaints have come in from beekeepers where he has been operating. Evidently nothing can be done, because he violates no law. He squats in localities where there are no foul-brood laws, or else where the laws are so carelessly drawn that he can not be restrained. It is claimed that he is spreading bee disease right and left: that he even *jokes* about it, saying that bee disease is his best friend, because he can go into a locality and clean out every beekeeper who may be a natural competitor. How is that for unadulterated meanness? Can you beat it?

It is high time that States in the West

that do not have foul-brood laws should secure the necessary legislation at once. Unfortunately, California is handicapped by a very ineffective *county* law. These county laws are not worth much at best. What is needed is a law that gives the State Entomologist or State officers police authority *over the whole State* to clean out bee disease wherever it may exist, and at the same time put a stop to the kind of work above described. A federal law should be enacted at once; for unless something is done speedily, such tramp beekeepers can spread more disease than all the inspectors in the country can eliminate.

"THE MANIPULATION OF THE WAX SCALES OF THE HONEYBEE."

THIS is the title of a new bulletin from the Bureau of Entomology, Circular No. 161, by Dr. D. B. Casteel, who has been in the Bureau for the past two summers, pursuing various kinds of work under the direction of Dr. E. F. Phillips, in Charge of Apiculture. We have read carefully this bulletin, and regard it as one of the most interesting and valuable that have ever been put out by the Bureau. We say it is interesting, and it is intensely so; and valuable, because there are certain facts presented which may enable the ordinary beekeeper to determine when he can have comb building, and when, perhaps, he may not.

About 35 years ago the writer was interested in this very subject covered by Dr. Casteel; and especially how bees put pollen in their pollen-baskets; but at that time we were not in possession of the apparatus, the time, nor the skill necessary to do this work. We watched the operation, or tried to, whereby the bees remove their wax scales; but it was done so rapidly that the whole performance seemed but little short of sleight of hand. Somehow the scales would be removed from the under side of the bee's abdomen, and transferred to its mouth; and likewise pollen would be transferred from the fore feet to the hind legs; but just how, we could not determine. But Dr. Casteel has worked this out by means of a binocular microscope that makes every detail of it, from start to finish, clear and plain. He then goes on to prove up his work from a purely mechanical and structural point of view.

Briefly stated, the process is this: The wax scales are scraped off by one of the large joints, or planta, of one hind leg, the spines of the planta piercing or catching into the scale; then the leg, by a peculiar maneuvering, is moved up to where the fore legs may grasp the scale. At this

point of proceedings the scale is manipulated or masticated in the mandibles, when it is applied to the comb. During the process just explained, the bee stands on three legs (the two middle legs on either side, and one hind leg not in action), while the other hind leg and the two fore legs, in connection with the mandibles, perform the manipulation. The whole thing is shown by some elaborate and careful drawings. We hope to have the privilege of presenting some of these later on in these columns.

Dr. Casteel shows that the so-called "wax-pinchers" in the hind legs have nothing to do with the manipulation of wax, but are designed for another purpose, and that each individual bee removes its own wax scale.

It has been popularly supposed that the bees remove the scales from each other; but the author shows that this is not the case. The scales are sometimes found scattered throughout the hive and on the bottom-board. In some instances they show the marks of the spines on the planta of the hind legs. In others they were probably dropped accidentally by the bees in that wonderful sleight-of-hand performance of which we have been speaking. In still other cases the scales show no markings whatever, and the presumption is that they simply fell off the bees when they reached a certain stage of development.

Dr. Casteel also confirms the observation of Dreyling, that there are certain ages and certain seasons when the bees will develop these wax scales more than others. From this it would appear that there will be times when bees could not construct combs to any great extent, even though they were liberally fed. In a practical way it has been found that sometimes even when the bees are fed they will not build combs; and the probabilities are that they simply can not, because the colony is made up of bees too young, too old, or both. Usually the condition of a honey-flow can be supplied artificially by feeding.

This paper or bulletin may be obtained by simply addressing the Superintendent of Documents, Government Printing Office, Washington, D. C. Ask for Circular No. 161, Bureau of Entomology, by D. B. Casteel, and enclose 5 cents. We hope our subscribers will ask for it, as we should like to have the Secretary of Agriculture, or, more exactly, the Bureau of Entomology, know that the beekeepers of the country appreciate this kind of work.

In our next issue we shall refer to another bulletin equally interesting and valuable by the same author on the subject of how the bee gathers pollen.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

DR. E. F. PHILLIPS made a short visit with us lately. Just now he is trying to learn what instruction to give the bees for best wintering in cellars. I practiced cellaring bees before Dr. Phillips was born; but he gave me points on it that made me open my eyes.

DAVID ROBERTS says, p. 116, "Shelter is not conducive to swarming except so far as it favors brood-rearing." Doesn't the kind of shelter have a bearing? The shelter of an apple-tree tends to prevent swarming. The shelter of buildings, bushes, etc., on all sides, preventing a free circulation of air, tends to favor swarming by making the bees too warm.

J. E. CRANE, I think you have things straight about European foul brood, p. 84, and it might also be added that a change of queens would be helpful, even if the new queen be not an iota different from the old one; but when a new queen is introduced there is nearly always at least a little break in brood-rearing, and that helps the bees about cleaning up.

"In 1896 Bradstreet's compilation of the wholesale prices of 106 commodities, including all the leading commodities of commerce, was 59,124; in 1900 this figure had risen to 78,839; in 1905 to 80,987; and in 1912 to 90,362."—*Daily*.

Let us see how the price of honey compares with this. Take quotations for comb honey, Sept. 1, in each of the years named, and find the average of the highest figure in each market. In 1896 it was 13.3 cents. If the advance in honey was the same as in the 106 leading commodities named, then for the years 1900, 1905, and 1912, respectively, it should be 17.7, 18.2, 20.3. It was 16, 13.9, 17. Take extracted in the same way. In 1896 it was 6.6 cents. In 1900, 1905, and 1912, respectively, it should be 8.8, 9, 10. It was 8, 7.2, 9.4. No doubt other factors have a bearing, which might make the showing better or worse; but in a general way it would seem that honey has not climbed with other commodities. [This is interesting in more ways than one. It shows that the price of honey declined from 1900 to 1905, and from that time on, especially beginning with about 1908 or '9, prices on food began to soar. This onward and upward tendency advanced the honey market at the same time, but not in proportion, as it would appear, to the price of other food stuffs taken as an average.—ED.]

"ONE-POUND section" is a term in common use; yet, strictly speaking, the one-pound section is a sort of myth, for not often is a section found which weighs 16 ounces, said section being $4\frac{1}{4} \times 1\frac{7}{8}$, which is the section mostly in use. For years there was more or less dishonesty about these sections, for grocers too often sold them as full pounds. Now, however, the public is better informed, and there is not so much trouble on that score. Custom, however, varies, and in some places honey is sold by the section and in other places by the pound. Our honey quotations are given by the case, also the pound. Is there any likelihood that, in the near future, there will be uniformity in this regard? Will the Cincinnati convention dare tackle the question? There is a gradual increase of quotations by the case. Is that really the better way? and if so, can it be made the uniform way? [Yes, it is true that the one-pound section, strictly speaking, is a misnomer. To get a section of that weight $4\frac{1}{4}$ square would make it necessary to have it 2 inches wide for the combs to average one pound. This makes a comb too thick to insure quick ripening and quick sealing. A section $4 \times 5 \times 1\frac{3}{8}$, plain, comes nearer to a pound; but to *average* a pound it would have to be $1\frac{1}{2}$ inches wide. A relatively large thin comb is far better than a small thick one. This is one reason why the 4×5 size is crowding the $4\frac{1}{4}$ square out of some markets. We believe the time will come when it will be the universal section.

From every point of view, we believe it is better to quote sections by the case rather than by the pound. Under the Colorado grading-rules this insures a more uniform weight of sections. It compels the producer to aim for a higher standard, both as regards weight and filling; and this is right. If the cases are sold by the pound, it has a strong tendency to let in any bulged or fat sections that are unsightly, as well as those that are lean and unsealed. Under the Colorado rules, the sections must not weigh more than a certain minimum nor more than a certain maximum. If the producer will "separator" or "fence" his supers, and use full sheets of foundation, he is usually able to meet the conditions of the grading rules. We are, therefore, strongly in favor of selling by the case, providing the individual sections are graded according to the Colorado rules. If they are not so graded, the cases should have minimum weight.—ED.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Some of our Ontario chaps have gone to California for the *winter*; and judging by that picture on page 83, Feb. 1, they seem to have found what they went after.

* * *

The "short course" recently held at Guelph was pronounced a success by all who had the good fortune to be present. The writer was there for only two days, but that was long enough to convince him that the students were satisfied that they were well rewarded for their time and expenses. Mr. Clark, of Borodino, gave a series of lectures on queen-rearing, while a number of Ontario men assisted in the lectures and discussions. Among them were Messrs. Sibbald, Armstrong, Nolan, Anguish, Schrenck, Bainerd, Harkness, and a number of others well known to the fraternity.

* * *

Dr. Miller says on page 790, Dec. 15, that a temperature of 32 to 35 degrees would be considered ideal wintering, even if there were no flight for four or five months. While we shall never have the privilege of proving the matter one way or the other, I venture to say that wintering would not be every thing desirable under such conditions, as the bees would be more or less uneasy all the time, and consume stores and go to brood-rearing—in the end would not come out as well as though the temperature had been much lower than that during most of the time the bees were confined. Bear in mind this is just my *opinion*, and I make no promise to try to *prove* the thing one way or the other.

* * *

Regarding the matter of sugar syrup versus natural stores, page 790, I am surprised when the editor says that reports for many years back have shown that a given amount of sugar syrup will go further than the same amount of natural stores. Surely you do not believe that a pound of *syrup* will go as far as a pound of good honey. While I have to feed lots of sugar syrup some falls, certainly I do not place that proportionate value on the syrup as compared with honey. I used to *think* that a pound of syrup would equal a pound of honey in so far as lasting qualities are concerned; but I now *know* that at the very least it takes a pound of *sugar* to have that value. Emphatically, I again say that, if your colony is short weight 15 pounds, instead of giving that amount of *syrup* to make the colony equal to the one heavy enough with honey, use at least that many

pounds of *sugar* instead, and then see in the spring if the syrup-fed colony is ahead of the one wintering on the same weight of honey. [See editorial comment elsewhere. —Ed.]

* * *

I never knew a season in which there has been such a demand for honey as the present one. Whether the consumption is increasing or the last crop much shorter than we estimated, one thing is certain: Many thousand pounds of honey could have been sold during the past three months if we had had the goods. Only recently a very responsible firm asked me to send them *at once* 14 or 15 thousand pounds, and I was unable to send them that many hundred pounds, let alone thousand. Some think the shortage is too short, even from the producer's standpoint, as it is feared that, being unable to get honey at a reasonable price, they will try to get a substitute to take its place. While I do not fear that very much, how I would have liked to fill that order for 15,000 pounds!

* * *

The vagaries of the weather are hard to explain; for while the conditions have been unusually cool, not to say cold, in the far West, here in Ontario the months of December and January were much milder than usual. Since February we have had some winter weather, but at no time this month has the thermometer gone below zero. Only twice this winter have we had a zero temperature; but as we have no snow the conditions are not any too good for the clover. However, the months of March and April generally decide the clover question. Only once have I known damage to be done in February. This mild winter should be good for outdoor wintering; and, barring one single report to the contrary, all who have written me say that the bees are wintering well. A number have told me that their bees in regular house cellars have been uneasy, as it has been difficult to keep the temperature low enough. On getting these reports I wrote to a friend who lives near my bees, some 200 miles east of here, asking him to go into the caves for the purpose of seeing how the bees were. He reported that they were perfectly quiet, and seemed to be wintering in splendid condition. This would lead one to believe that the repositories almost if not entirely under ground, roof and all, are to be preferred to regular house cellars where the air is more apt to be subject to outside conditions and variations.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

CONCERNING COUNTY COMMISSIONERS.

Bills for bee inspection are presented to the county commissioners before they are allowed to be paid by the treasurer. The average county commissioner knows almost nothing of the character of the work of a bee inspector. If the county officers knew the character of the work to be done there would be little questioning as to the value of the inspection, and there would be more questioning as to the actual work accomplished. The county commissioners should require a detailed account of the apiaries inspected, number of colonies examined, number of colonies diseased, number treated by the bee owner, and the percentage of decrease in the disease from year to year. Bee inspection is a farce unless money enough is available to give thorough inspection of all the bees in infected areas; and it is still more a farce unless the inspector forces the cleaning-up of every diseased colony.

* * *

PAY TAXES ON YOUR BEES.

Patriotism of the simon-pure variety is shown in honest tax schedules with nothing legitimately taxable reserved from entry. The bogus kind is found where tobacco smoke is thickest in the political meetings where they "whoop 'er up" for the party that saved the country from destruction. The bogus kind always does the loudest clapping when the picture of Washington or Lincoln is thrown on the screen, or the flag is unfurled. If we appreciate good roads, schools, and progressive public enterprises, we should consider it a privilege to contribute our share to the public welfare. And if the public funds are being misappropriated we should be just as loud in our denunciation and active in righting the wrong as is possible; and for the bee-man to pay his full share of taxes will give him the right to ask and demand full protection from his county, State, or national government in the way of bee inspection.

* * *

TINKERING WITH FOUL BROOD.

Out in Idaho there are still a few beekeepers who cling to the idea that American foul brood can be cleaned out of diseased combs with formaldehyde. Those who still hold this idea certainly have not tried it thoroughly. Our experience with fumigating combs was quite extensive and thorough; and while the disease did not reappear in every comb so treated at once, every

comb showed the disease as prevalent as ever before the season was over. For the average honey-producer to attempt the experiment is folly. It may be possible in time to find a method of fumigation that will kill the disease; but the beeman will make money by leaving the experimentation to the experiment stations. Follow the known methods, and work your diseased combs into wax. Get the wax worked into foundation, and put full sheets in your brood-frames, and you will lose scarcely any thing but the work.

* * *

HOW TO GATHER SWEET-CLOVER SEED.

A device was illustrated, p. 454, July 15, 1912, called a sweet-clover-seed stripper; so, wanting to gather some seed, I made one which was similar. It would not work satisfactorily, so I placed in the center of the large sheet made out of several old bed-ticks, a large box. Over this box the sweet clover stalks were thrashed in convenient-sized handfuls. The larger part of the seed falls into the box; but what falls outside can be easily gathered from the sheet. The seed then requires sifting through a screen of about a fifth-inch mesh to take out the sticks and leaves. The seed will not sift through ordinary window-screening, as the unhulled seeds do not readily pass through. By rubbing hard a considerable amount will hull out, but the leaves are ground into a fine dust by so doing. Sweet-clover seed should be run through a fanning-mill in order to remove this dust.

CUTTING THE CLOVER.

The seed rattles off the stalks better if it is ripe before thrashing. To prevent the seed rattling off while cutting the clover, select a time after a damp period or a rainy spell. The seed will not rattle off so much if cut just before it turns brownish black. The seed will ripen if cut and laid on the ground in piles.

A scythe is not to be recommended for various reasons. Much of the seed is lost; and, besides, it is difficult to work even a brush-scythe on the coarse stalks. There is a chance that weed-stalks will get in with the sweet-clover stalks, and this should be avoided.

The best method is to cut the stalks by hand with a sickle, piling it up as cut. A half-acre of sweet clover furnishes me 350 pounds of fine seed. The work of gathering the seed required about five days, every thing counted.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

How would this sound—cellar wintering in California? Not as strange as it would have sounded at one time.

* * *

While Editor Root, Dr. Miller, and Mr. Byer are sparring over the question of how bees winter on solid combs of honey, the most of us are wondering how they ever reached the winter with so much honey any way.

* * *

When I read the letters of those old-timers who were subscribers to GLEANINGS shortly after I was born I feel quite young; but when I stop to think that I myself was a subscriber back in the eighties I feel that I am getting old fast enough.

* * *

FEEDING UNNECESSARY IN THE SPRING IF
THE COMBS ARE ALREADY WELL SUPPLIED
WITH STORES.

After stimulating some of my colonies for three weeks with sugar syrup I opened them in order to see the results of my kind care, and was gratified to find much brood started. Curiosity led me to open some others, and they had as much as or more than the ones I had been feeding. I doubt if there is much gained by feeding a normal colony that has plenty of stores, for the purpose of inducing them to rear brood. Pollen is a greater aid in that direction, and more to be desired, than additional stores. A weak colony short of stores would doubtless be encouraged to more liberal use of its meager supply of stores if there were more coming in daily; but where stores are no object one must look to other conditions to induce brood-rearing, and nothing is better than a supply of pollen adequate for each day's use.

* * *

PROSECUTION WARRANTED IF DISEASED COLONIES ARE SHIPPED WITH FULL KNOWLEDGE OF THE OWNER.

Mr. Wesley Foster, Feb. 1, answers my query as to whether a carload shipment of bees that were prevented from being shipped into Colorado were known to be diseased. For the most part I like Mr. Foster's answer; but on one or two points I wish to make a suggestion. He says, "Our Colorado law is broad enough so that I think an inspector would be upheld in destroying all diseased bees upon arrival. This would not be just unless the disease was being introduced into a clean district." I will agree

with Mr. Foster that, in a case of this kind, stringent means should be resorted to; but at the same time I do not believe that a man's property should be destroyed for the benefit of society unless society is willing to compensate for its loss; for to throw the burden on the individual when the benefits are enjoyed by the entire community would be manifestly unjust; and it seems to me poor law also. The same would be true anywhere. I have opposed the destruction of bees, diseased or otherwise, where they were shipped in good faith as being free from disease, but were later found to be diseased. If it is found necessary to destroy, there should be some compensation for the loss unless they were shipped with the knowledge that they were diseased. Then I believe they should not only be destroyed, but the shipper should be vigorously prosecuted.

* * *

PROSPECTS FOR HONEY.

Conditions in California seem to have changed for the better. We have just had another inch of rain, which helps to add new hopes at least. Indications now are that there will be sufficient orange bloom to supply those who are depending on it for their main flow. I have given the sage very close inspection, and find that some of it is damaged beyond my greatest fears, while much of it is injured less than I had supposed. The situation in this locality is about like this: In the small valleys and bottoms of the canyons the bloom is not only killed, but much of the wood (at least that part of the wood from which the bloom comes). On the sides of the canyons there are increasing signs of life; but the signs are deceiving at this point; for while there are plenty of green leaves on the twig-tips, the bloom-buds within are dead. As we go on up the canyon sides the green increases rapidly, and a point is soon reached where there is no indication that there had ever been a freeze. This condition rules, no matter how small the canyon or what the elevation, and is only in keeping with the old and well-known fact that the cold air holds its position below the warm, hence the frozen and dried tops in the little valleys and the bright green higher on the canyon sides. It is really remarkable to see how well defined these lines are shown by the green and the lack of it. Forty or fifty feet up the canyon sides, above bushes that are brown and dried from frost, there are bushes that seem never to have been touched.

Conversations with Doolittle

At Borodino, New York.

LONGEVITY OF QUEENS.

"Am I right in thinking that all improvement in bees must come more largely through the queen than otherwise, inasmuch as one can have no certain control of the drone? and in order to be sure of being on the right track when working for long-lived bees, should not the mother of these bees be long-lived also?"

"Yes, I think so."

"But if this is the case, how does it happen that nearly every queen-breeder as well as the majority of our most prominent beekeepers advocate that no queen be allowed to live more than two years? Many are advocating the superseding of all queens at the close of the honey-harvest after their first year's work."

"This is something which has puzzled me as well as you; and I never could see how any great improvement of stock would result in any apiary where new queens are reared each year or two to supersede all those reared one or two years before. I have noticed many times that such colonies as kept the hive populous during the summer months with brood to the amount of only five or six Langstroth frames full, and stored the most honey, always had queens which lived, when the apiarist allowed them to do so, to a good old age. But the trouble has been that most beekeepers have had prolific queens so drilled into them that no queen that will not produce brood in excess of this is not allowed to pass her second winter. And because of this, the goose which laid the golden egg has no chance to prove her superiority above the rest. Queens which live to be four or five years old give to us our starting-point when breeding for the bees which make the greatest amount of honey with the least expenditure in bee force and brood-rearing. Much honey is used by *scrub colonies* in rearing a multitude of larvæ from queens whose average usefulness does not exceed a year and a half or two years. And these long-lived valuable queens, with hardly an average amount of brood, are the ones sure to be killed by the beekeeper who tells us that, if we would have the best results in hives full of brood, all queens must be superseded after their first or second year of laying."

"But would you recommend rearing queens for the improvement of stock from a mother which is four or five years old?"

"In regard to rearing queens from such an old queen, I do not claim that a queen is better at that advanced age than she is

when younger. Only this: I am not *sure*, at a *younger age*, that she possesses the desired longevity. Where any queen from a long-lived strain of excellent workers has lived to an age of five years I expect that her posterity, both workers and queens, will be remarkable for longevity as well.

"A good guess can be given regarding what young queens will prove to be as to length or shortness of life in two ways. First, if during the first half of the first month of May in which a young queen lays it is found that the colony of a young queen is building up while others are dwindling (all colonies, of course, having had the same protection and stores during the winter, and being equally strong at the beginning of the season), then one would not be far out of the way if he concluded that those building up have queens and bees with a promise of long life, while the others do not have queens fit to become breeders.

"Second, after a young queen begins to lay in a full colony, and after the swarming season is over, if a frame is put in such a colony having a starter of worker comb foundation in it, then, if the frame is filled with worker comb, I consider this queen worthy of further testing. If drone comb is built I do not expect much from her beyond the first or second year."

"But don't you think that there are other influences which tend toward longevity?"

"Surely I do. But, as I hinted before, the *queen mother is the starting-point*. The worker larvæ as well as the queen larvæ must be properly fed. Undoubtedly you have noticed that some larvæ as soon as hatched are fed much better in some colonies than they are in others. I have seen larvæ in the colonies of my best queens which were fed so abundantly that one might suppose that royal jelly was being given them. They actually floated in their creamy food until almost, if not quite, the fourth day. Other colonies are fed so sparingly that it requires microscopic vision to see that there is any food in the cells for the little six to twenty-hour-old larvæ to eat. It is needless for me to say that I do not consider these underfed larvæ fit to use under any circumstances for queen-rearing. Queens which will live four or five years can not be reared from such larvæ. Where such are nursed as queens (by a change of bees or different surroundings), their life is so restricted that from six months to a year is sufficient to find the bees themselves superseding them for something better."

General Correspondence

HOW A WOMAN MANAGES THE HEAVY WORK IN AN APIARY

BY MISS EMMA WILSON

[As most of our readers know, the writer of this article is Dr. C. C. Miller's sister-in-law, and his right hand man(?) in the apiary. Because of her long experience and training under such a teacher as Dr. Miller, we think that Miss Wilson deserves the title of "Dean of our Beekeeping Sisters.—ED.]

The question is no longer asked, "Can a woman successfully run an apiary alone?" It has been demonstrated too many times that she can and does, for there are many apiaries run entirely by women, and successfully too. But there is no denying that, in the running of an apiary, there is heavy work that must be done. How can a woman manage this heavy part of the work?

The experienced bee-woman has learned to take advantage of many little kinks that lighten her work, and knows, like the good general that she is, how to plan her work so as to accomplish what has to be done with the least expenditure of strength and labor. Especially is this necessary for the rather delicate woman who has no great amount of strength to spare.

To lift out a frame of brood, bees, and honey, and look it carefully over is quite easy; but to handle these frames at arms' length, or nearly so, gets to be work before night; and especially is this true before the muscles become accustomed to the work. So, begin by doing only a little at a time, gradually increasing the amount done each day.

When a colony must be moved, don't try to lift it all at a time. Take an empty hive and lift out part of the frames, putting them into the empty hive; then the rest can be lifted easily. Still, there may be times when it is desirable to move hives without opening them, as when taking in or out of the cellar. In that case it may be best to get a man to do the lifting. But if no man is available, possibly some woman can be found who will help; and if the hives have cleats on each end, the cleats running clear across the hive so that a rope can be slipped over them, you will find that two can carry a hive quite easily by each taking hold of the rope on opposite sides of the hive. An endless rope is used, and it can be quickly thrown over the cleat on each end.

The really hard work begins with the harvest, when there are so many supers to be lifted off (often four or five, and sometimes more), before you can reach the brood-nest; and when you go through your colonies every eight or ten days it means

work to lift these same supers off and put them all, or the larger part of them, back again, after going through the colony. But it makes some difference how the work is done. Instead of putting them on the ground, or leaning them against the hive, have an empty hive-body ready and pile the supers on that as you take them off. It is much easier to lift them from these than from the ground, and they will go back to the hive exactly in their previous order. Sometimes, however, it is desirable for some reason to change the order. Each super is inspected as it is taken from the hive; and any change in the order will be made as the supers are taken from the hive. Then when they are to be put back on the hive no time is lost in a second inspection. Another good thing about this arrangement is the immunity from robbers. When robbers are at all troublesome a robber-cloth can be thrown over the pile of supers, and they are safe, often allowing you to keep on working when otherwise you would be obliged to quit.

But if I were obliged to name just one item in saving hard work in the apiary it would unhesitatingly be—*keeping queens clipped*. I have not had a great deal of experience in climbing after swarms; but the little I have had has led me to believe that there is nothing more exhausting than climbing after swarms on a scorching hot day; and climbing after swarms will make any old day scorching hot. It is an exhausting, nerve-racking, temper-trying experience that, to my mind, is totally unnecessary. Of course, there will be an occasional swarm that may elude you, and issue with a virgin queen; but such swarms are the exception, and only serve to make you supremely thankful that you don't have to climb after every swarm that issues. Indeed, after one such experience, what bliss it is, when the next swarm issues with a clipped queen, to pick her up, cage her, lay her at the entrance, and nonchalantly walk away to attend to your own affairs and leave that swarm to do the same! Doesn't that sound alluring to those of you who still have unclipped queens, and are climbing after those dreadful swarms? Just try queens with clipped wings, and see if you ever want to go back to the unclipped ones again.

"Would be glad, too, if you could only do the clipping, but you can't." Oh! yes, you can—no trick at all after you are used to it. Just practice on a few drones until you get over feeling nervous about it.

You ask me, Mr. Editor, for something

new in the matter of women's bee-dress. Really I have nothing new to offer in that line. The only extras I don for the apiary are a large denim apron with two big pockets, gloves with sleeves attached, and a veil. The sleeves sewed to the gloves are white, and are fastened together in the back with a band between the shoulders, securely sewed to the top of each sleeve. A similar band fastens them in front, only the band in this case is sewed to only one sleeve. The other end of the band is furnished with a button-hole, and a button sewed on the other sleeve completes the fastening. This makes it easy to slip the gloves off and on when you wish to clip a queen. The veil is drawn down taut, and fastened with a safety-pin.

Marengo, Ill.

A WOMAN IN THE SPHERE OF ASSISTANT BEEKEEPER

MRS. LIZZIE SHIELDS

I can scarcely, as yet, claim to be a beekeeper; but my husband has started, and I help him. In 1906 a farmer whose cattle we pastured for the summer offered us in part payment a colony of bees which we accepted. They arrived in November, when, according to advice received, we dug a hole and buried them for the winter. The following May we found the hive afloat, and every bee dead—drowned by the melting snow. We steadfastly gazed on the bees that were dead, and bitterly thought of our lost five-dollar bill.

In 1907 the man again brought his cattle to pasture, and joined us in our lamentation. He said we should have made a drain to run off the surplus water. He wanted us to try again, and offered us a colony for half price. Again we agreed, and again put the hive in the same place; but this time we had a drain; and, lo! on bringing them out the next spring they were alive and in good condition. They were common black bees in an old box—very primitive indeed. We began to read and study about bees, and finally became enthusiastic.

We were unfortunate in 1910, expecting to winter three colonies. On moving them to the cellar, however, we found that two had decamped, root and branch, leaving only beeless hives with honey in them. So in the spring of 1911 we started again with a single colony. I purchased Mrs. Comstock's admirable book, and we also secured the A B C and X Y Z of Bee Culture. By and by, as a Christmas gift I gave my husband "Langstroth on the Honeybee." We purchased an Italian queen, and made a new colony from a nucleus. Ere long we

had a fine colony of Italians, and from them got a queen by which we Italianized the second colony. Meanwhile the second colony swarmed, and we had a third colony (blacks). We had 85 lbs. of surplus honey from our bees in 1911—practically from one colony, all the others being youngsters. These three colonies were wintered in our cellar, and were in fine condition last spring.

My husband took a short course in apiculture at the Ontario Agricultural College, Guelph, last January; visited the Brantford bee-supply factory with the other students, and left a fair-sized order for hives, foundation, excluders, etc., with the firm. On his return home he was saturated with bee lore.

Last June we purchased another Italian queen, and in September a third. Our three colonies have increased to six, all flourishing and strong.

We are now glad that we took heart and kept on trying. We find great pleasure in more ways than one. The honey is a good addition to our table, and we sell all we do not use.

Last summer the bees insisted on swarming, or otherwise demanding attention on three successive wash-days. My appreciation of their demands for attention was much below par. However, the swarms were little trouble to secure, as in each case we had clipped her majesty's wings, and so prevented her from flying off with her retinue. She had to content herself with walking on a white dress laid in front of the hive, where we quickly espied her, and carefully placed her in the new hive. In a very short time every bee found out that the sovereign was holding a levee, and went to pay its respects to her.

The only objection I have to bees is the stinging. They and I have frequently disagreed about that, and sometimes I got the best of the argument, though more frequently *they* came off victorious. If they were of a less aggressive and inquisitive turn of mind it would be more pleasant; but they are "mixed mercies," so we need not grumble. At first I thought I should never handle the little creatures, but one becomes accustomed to bad usage, so now I accept the stings as meekly as possible. The worst sting I ever got was when hunting for a queen. While peering into the hive the tip of my nose was suddenly attacked. Now, that is a decidedly vulnerable point, and the tears coursed down my cheeks so heavily that I had to retire, for I could not see. They say that stings cure rheumatism. I do not know whether that is true or not; but this I can aver: For some years I suf-

fered very much from rheumatism; and since we began keeping bees all my rheumatic pains have vanished except in one finger. Did the stings have any thing to do with this?

We read every bee item we see, and I am learning right along. My husband knows far more about bees than I do; but, of course, a man can not get on without his wife. For instance, one day he rushed into the kitchen, wildly pawing the air, and performing a sort of war-dance, very much unlike his usual quiet behavior, and all because a little bee stung him on the nose! He implored me to help him off with his veil, and an unholy joy filled my heart at the scene, for I remembered how he scoffed when I fled with a sting in *my* nose. It all depends on whose nose the bees attack; and it's quite a different matter when it's your own. But we do not trouble much about stings after all—just grin and bear them.

I am not exactly a beekeeper as yet. I am only a beekeeper's assistant. But there is no reason why I too should not go on and do as well as others.

O'Connell, Ontario, Canada, Sept. 30.

THE SHAKEN-PLAN SWARM FOR WOMEN

BY MRS. GERTRUDE GILL

Women are becoming competitors of men in many branches of industry, and successfully too. Then why not in beekeeping? A woman's work is bound to be more or less monotonous (I am speaking now of house-keeping), made up as it is of little tasks that, for the comfort of the family, must be repeated every day. That, together with the indoor atmosphere, often brings more or less nervous strain on the wife and mother. To most of us I believe there is a bond of kinship with Mother Nature; and a little while each day in God's beautiful out-of-doors means new life to tired nerves; and what better or more profitable way to bring this about than to make a study of bees?

The fear of stings keeps many women away from the apiary; but in most cases this fear can be overcome with an increasing knowledge of the natural instincts of these little workers.

Eighteen years ago I came with my husband to Colorado, that Mecca of sunshine and pure air suggested by many physicians for stubborn cases that refuse to yield to pills and powders. In order to be out of doors I began helping him in the apiary; and with his patient teaching and the fascination there is in working with the little busy bee my natural timidity was soon overcome; and with returning health there seem-

ed to open to me a new vista in life I had never before thought of.

If I were to advise younger women just entering the work I should suggest that, to start right, is perhaps the first essential to success in beekeeping, for I believe the time is past for any one with any old method to succeed in apiculture. There are more difficulties to contend with—hard winters, poor seasons, overstocking, and disease; and one must make a study of his own situation, giving his bees careful attention.

I believe in beekeeping for women; but I don't take to the "dishpan and sheet" theory. I should like to tell how we manage this trying part of beekeeping—the swarming season—for I don't take kindly to climbing trees, jumping over ditches, getting through wire fences, and the many athletic feats necessary to catch a swarm that may, after all, object to being caught. Now for this method that, I presume, has grown threadbare to our male readers, but may still be new to the women folks.

First, we will take it for granted that the hive has movable combs, and the condition such that bees would cast a swarm anyhow. Using a little smoke at the entrance, gently remove the cover so as not to disturb the bees more than necessary. Take out the follower; or if there is none, the outside comb; gently loosen the frames with a hive tool, giving plenty of space to lift the combs without crushing the bees. During the swarming season it would be well to begin with the side combs, looking over each one carefully. After locating the queen, set this comb, with the queen and bees on it, at one side, in the shade if the weather is very hot. If you have no helper, lift the hive back from the stand, placing the new hive (which should be prepared beforehand with foundation starters, or sheets, if preferred) on the stand where the old one has just been removed. Level it carefully, thus producing straight combs. Then take the comb having the queen, which should contain eggs or larvæ. Make room in the new hive by removing one frame with starter. Hang this comb with the queen in the center of the new hive, first making sure that all queen-cells have been cut out. Shake the bees from the four center combs of the old colony (not too close, as you will need the young bees to protect the brood left. After putting the frame with foundation at one side of the brood carry the old hive away to the new location. The shaken colony on the old stand will catch the working force.

Hang up the dishpan and sheet. You will not need them. The bees have swarmed just as well as if they did so naturally, and

you are in a better temper than with the old way of letting the bees have their own way, and the whole apiary has not been disturbed with that feverish unrest that is sometimes the case where swarms are in the air all day.

Hyrum, Utah.

[The writer of the above would be better known to our readers, perhaps, if she had signed herself, "Mrs. M. A. Gill." Her practical suggestions show that she is no longer an amateur.—Ed.]

KEEPING BEES FOR PROFIT

BY RUTH C. GIFFORD

I took up beekeeping because I could make some money, and at the same time be at home. My bees averaged about 100 sections per colony last year. The best colony made 146 sections; and the poorest, my only pure Italian colony, 57.

Most of my honey is sold locally—that is, to consumers within a radius of two miles, and by the case to country and town stores for ten miles around. The remainder is sold to a dairy-product store in a city near by. The price is 20 cents a section for fancy and No. 1. I have very little of any other kind, for honey is just as easy to take off at the proper time as it is after it is travel-stained.

I have no wheelbarrow for carrying hives and supers; but I did have a stout express wagon left over from "kid days." I took the sides off and nailed two half-inch cleats lengthwise on the edges of the bottom. These parallel strips are always in position; and, being half an inch higher than the bottom, they prevent bees from being mashed. Lately, though, when interchanging supers I take them off and set them on their sides across the wagon. In this way, after the supers are set off the hive they are parallel to each other, and two or three inches apart. Then they can be replaced in any order desired, and without extra lifting. If a super is full of foundation on which the bees have just started to work I set it on end on the wagon, because the thin combs and foundation would bend under the weight of the bees if the super were placed on its side, and the result would be a lot of sections stuck to the division-boards.

I use the eight-frame hive. If I want to move one when it is full of honey I take out three or four frames, carry the hive and remaining combs to the desired place, then get the frames which were set out, and replace them in the hive. If the distance is longer I take out part of the frames set the hive on the wagon, and set them in it

again. When the new location is reached, I again take out part of the frames, set the hive on the stand, and then replace the frames.

North East, Ind.

AN ARMOR FOR THE TIMID SISTERS

BY MRS. E. R. WILSON

I am very fond of honey or I never would have been interested in bees. But when we started with one colony, and I experienced the first stings, my ardor cooled somewhat, for those stings really did poison me. After one summer, however, I began to contract the bee fever, and have had it ever since. I now work with the bees at all times.

The feminine beekeeper should never trust even the most gentle colony, but should always dress so that being stung severely will be an impossibility. The following is a very safe suit for the use of women in the apiary: Long bicycle boots, reaching to the knee, or buttoned leggings; a pair of long bloomers to fasten below the knee with an inch-wide elastic band, and a band of elastic to hold them in place at the waist; a waist to slip on over the head, made long at the bottom, so as to pass under the elastic band of the bloomers; and a bee-veil sewed to the neck of the waist, and finished with a narrow elastic at the top in order to snap around the hat-crown. A short lightweight skirt and long elbow bee-gloves complete the equipment. A bee must be very smart to do much harm to one in such armor.

When one feels safe the interest is double what it is when fear is the main thought.

I assist my husband in caring for the bees by using the smoker, and he says that I make an excellent helper. When he is away I take all the care of the apiary. The work is hard at times, but not harder than some parts of housework. There certainly is more pleasure and variety in it, for the bees surely keep one guessing.

I would advise women who are beginners to keep only one colony at first, for "chunk" or extracted honey the first season. Section honey is good, and is more suggestive of a woman's work, but is really harder to handle, and it is more difficult to secure results. The bees swarm worse, and this should be avoided by any beginner.

Plenty of room should always be given. Shallow supers are best for a woman to handle, and are pretty enough, when well filled, to please any one.

Last, but not least, clip the queen's wings. Men may not need to; but women certainly do, especially if slightly timid.

Tony, Wis.



Mrs. E. L. Swope demonstrating bees at the Puyallup Fair, Washington.

APICULTURE AS AN OCCUPATION FOR WOMEN

BY MRS. E. L. SWOPE

The reasons for keeping bees are many and various, and the business appeals to man, woman, youth, and child. Bees have been a part of the conscious life of man from the beginning. Not only have they sweetened his daily bread with beneficent honey, but they have also set him an example far more uplifting than any other insect or animal creation.

Beekeeping is the one line of work that the busy woman or the woman of leisure can take up as a remunerative occupation. All beginners should be provided with a silk bee-veil and rubber gloves, because bees do not often attack rubber. They should also visit the bees often and keep up the acquaintance, but should not approach the front of the hive. Always approach a hive from the side or back. When thus protected by veil and gloves any one can handle bees without being stung. However, most people become immune to the poison after

being stung a few times. When bee management has been properly learned bees are as easily handled as birds. Women can care for bees because there is little attention necessary unless one wishes to feed for early brood-rearing, or there is foul brood in the vicinity.

When the swarming season is at hand, and one is provided with a new sectional hive with frames properly fitted with brood-foundation starters, and an Alley queen and drone trap, the bees may be allowed to cluster in the trap or they may be left free to cluster elsewhere. If they cluster on a bush, cut the branch and lay it before the hive, preferably on a large sheet of cheap muslin. Then tap lightly with a stick, and you will soon experience a thrill of enthusiasm. The bees will march into the hive in regular order.

Women who keep bees are of great benefit to their homes and communities. The honey supplied is the most healthful and purest sweet the world knows, and is useful in a variety of ways. It may be used in its natural state on the table, in fruit-canning,



FIG. 1.—Dr. Edna P. Matthews' plan of locating colonies on long concrete foundations.

cooking, baking, and candy-making—in fact, in any thing that sugar and water are used in. It has greater sweetening power than most of the manufactured syrups, and, besides, possesses great medicinal value.

As a remunerative occupation for women it has been my experience that it is extremely profitable, clean, and healthful. When bees have been properly cared for during the winter and spring, and a proper method employed during the summer, a single swarm can produce from 50 to 200 one-pound sections of surplus honey which can always be sold at good prices. It is a business that can be carried on with one or two hives or one or two hundred. It can be carried on at home, thus affording a great opportunity for self-improvement. There should be at least one or two hives of bees in every garden, especially in the rural sections of our country, as the bee is the best

pollenizer, and perfect pollenization means perfect fruit and grain.

Buckley, Wash.

HOW A WOMAN FOUND RECREATION WITH BEES, FRUIT, AND FLOWERS

BY DR. EDNA P. MATTHEWS.

A woman is mentally and physically perfected for bee culture. Twenty-five years of intimate study of women, both in health and

in sickness, gives me the foundation for the above arbitrary statement. Her long years of training in household detail, her quick perception, enthusiasm, and versatility, all combine to make her an ideal bee-keeper. Often longing for the real things of life and their doing, it is a blessing to her if she can pick up an avocation that is pleasing, healthful, and remunerative, thus segregating herself from idleness and frivolity.

"Cottage Garden" is a two-acre fruit and flower farm developed out of a forsaken, barren, suburban knoll composed mostly of subsoil. We took up a proposition of this kind because of a breakdown under a tremendous strain. (Note the willingness of one doctor to take his own medicine!) Our plan, originally, was to put out choice fruits and vegetables for the use of our family, selling the surplus. We wanted a

large planting of fine peonies, a large vineyard of fancy table grapes, and we also wanted bulbs and shrubbery blooming for Memorial day. Our income was standardized at \$500 a year, and the labor at five hours a day; but we found that these could not be kept uniform, as some crops failed on account of conditions beyond our control, and some required twenty-four hours' labor a day. For instance we cut and mar-

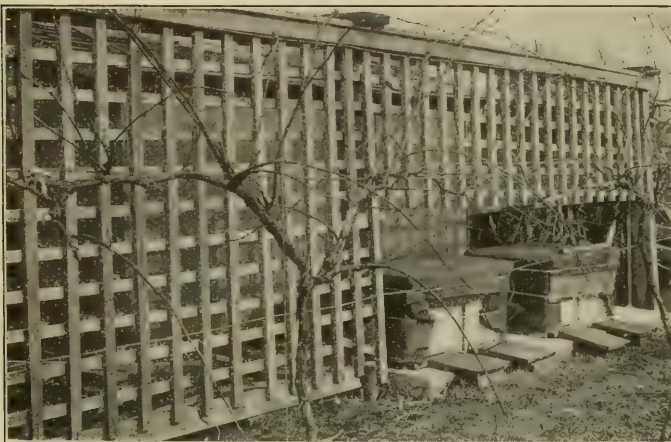


FIG. 2.—Latticed grapevines for shade.



FIG. 3.—Winter cases made of barn-siding, which are used in the summer for chicken-coops.

keted 600 dozen peony blossoms and a wagonload of other blossoms in seventy-two hours before Decoration day. Bees were added to pad up this income by providing an alternate. We found the honey crop fluctuated too, as we have only one main pasture in this location, that being white

clover. However, when all crops are good our beloved recreation becomes a very strenuous occupation.

The apiary consists of from twenty-five to fifty stands. We like about thirty. It is essentially a home apiary, and is conducted as such—always in harmony with its sur-



FIG. 4.—Interior of a model shop, showing method of cleaning fixtures.

roundings. The colonies are located about the place in groups convenient for operation and for observation in passing to and fro. One long line extends toward the barn and poultry-yard where duty takes us many times each forenoon. Most of the colonies are located on cement walks, built for the purpose, thirty inches wide, with a slope of one inch toward the south, and shaded by lattice work and grapevines. These cement foundations are spider, toad, and mouse proof, and easily cleaned, and they add to the durability of the hives.

The colonies are usually wintered right on these walks by being moved together in pairs, and packed with cushions of lawn clippings in the supers, which are supported away from the top-bars by pieces of the angle strips taken from the corners of hives as they come from the factory. Over the covers of the hive are first placed pads of wool carpet, and then the felt roofing paper. We also use some winter cases as in Fig. 3, made from barn siding. These have drop fronts and adjustable floors, and are used for chicken-coops in the summer.

The shop was built to conform to the other buildings on the place, and is suitable



The basket shown is a regular market basket with part of a barrel-hoop nailed on for a handle. A short cord with a hook on one end is tied on as shown. I have used such a basket for years to shake swarms into. The basket is hung to a limb; and when the bees cluster they can be carried anywhere you wish.
—A. P. LAWRENCE, Delton, Mich.

for the work to be done in it. The lattice work in front of the porch is cut out enough to allow loaded supers as well as fixtured ones to be stacked up when they are being moved out and in. The room is lighted by electricity, and is fitted with every device for facilitating the work. The cleaning operations extend to every article connected with the bees. All of this work must be done early in the winter, as the pruning, spraying, carpentering work, cement work, etc., must be done later. We first empty all the hives and supers that have to be cleaned; and after repairing and painting them we stack them along the wall ready for the inside fixtures. We use an original device for cleaning fences and holders. The plan is to tack two sheets of No. 3 sandpaper on the edge of the fence, and then with half a sheet to cover a 2 x 4 x 12-inch block which is held in place on the bench by cleats, as shown in Fig. 4. Every part of the fences and holders, such as sides, uprights, etc., may be brought rapidly over the sandpaper and made as good as new or better. All parts needing repairing are laid on a pile and attended to later.

Our tools for repairing are very simple—a couple of plated table-knives cut off square, a tack-puller made from an old file, a pair of small pliers, trays of nails, and a fine saw.

As soon as our twelve-foot bench is full of clean fixtures they are packed away in the supers awaiting the sections later on. We do all this work with the shop unheated, the temperature being about 32 degrees F.

When we get ready to clean the frames, if they are very much soiled we put them in a kettle of Lewis lye, using two pounds to eight gallons of hot water. After a few minutes in the lye we fork them into a tub of water in which four pounds of salt has been dissolved.

For fastening foundation in sections we use a Lewis foundation-fastener, and throw the completed sections on a table having a fence around the top to hold them. For this work and for all bench work, as well as for work with the bees, a pair of spectacles with a 24-inch focus are essential for the use of middle-aged persons.

CLOTHING FOR THE APIARY.

The bee-woman, on approach of spring, will get her clothing ready for work. A short skirt should be worn, clearing the shoe-tops, and wide enough to give free motion. This should be made of brown denim. The shirt-waist should have three buttons at the waist-line on the back to hold the skirt securely. Brown hose, ribbed for neatness, are best. (Boys' hose are more



Mrs. S. E. Howard, Wakefield, Mass., showing that full supers are not too heavy for a woman to lift.

serviceable.) The shoes should be low-heeled and comfortable. A close-fitting jacket made from denim with an easy standing collar, hooked at the throat, a soft hat, and some bee-veils from black netting, complete the outfit.

SOFT CANDY FOR SPRING FEEDING.

In the spring, if feeding seems advisable we give fondant made by the same formula used for our children in the early years. This is made of a pound of granulated sugar, four ounces of water, a pinch of cream of tartar, and a pinch of salt. The mixture is put in a covered pan, and boiled without stirring until it just spins a thread from the upheld spoon. It is then poured into a bowl on a firm table, and when it crinkles like hot milk it should be beaten vigorously. After it turns white it is poured into a paper pie-plate. After a few trials a perfectly smooth cream can be produced.

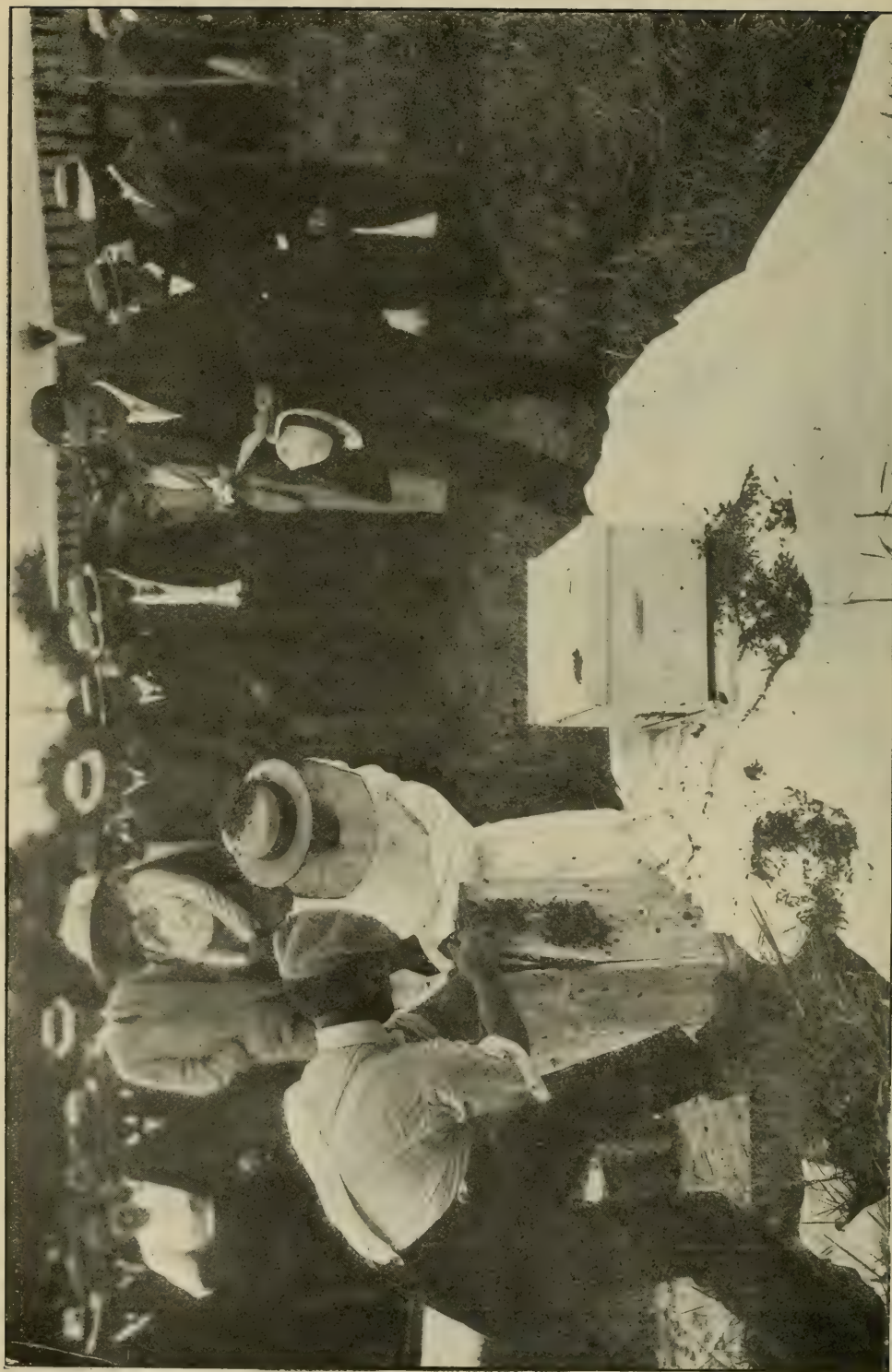
The explanation of the formation of this candy is that the first crystal stamps the mass. The coarse crystals form on the sides of the uncovered pan; and jarring, while cooling, will start coarse crystallization. The cream of tartar converts a small amount of cane sugar into glucose—quite enough to prevent coarse crystals forming. (Commercial glucose should never be used, as the

makers will not go to the trouble and expense to reneutralize all of the acids used in the conversion of the starch.)

Gradually the colonies are prepared for supers. The top-bars are scraped clean, bulged combs are cut down to the proper thickness, old queen-cells removed, bottom-bars cleaned—every thing being put in the best possible condition, while at the same time the colonies are getting used to being handled. We place three pieces of veneer, two inches wide, across the top-bars, preventing the bees from plastering the section-holders fast to them. We allow the bees to store the miscellaneous flow of the early spring in the brood-chamber.

We have very few swarms during a good honey-flow. The ground slopes to the south, and the avenue is planted with catalpa trees; and, having no high trees about, our swarms rarely leave the place. Last year there were eight that swarmed in succession on the same grapevine.

All finished honey is carefully scraped, and packed in cases. The honey that is produced in shallow extracting-frames is cut out and put in buckets, and sold as bulk comb honey, for which there is quite a demand. Our market is local, most of the sales being made by telephone, although



Prying open the old box hive after most of the bees have been drummed up into a box and dumped on the sheet in front of the new hive.



Transferring not impossible for women to undertake. Brushing the few remaining bees from the combs in the old box-hive.

many of the orders stand from year to year, running all the way from ten to fifty sections. We sell direct to the consumer at a good price, rarely taking less than 25 cents a section.

Dayton, Ohio.

A WOMAN'S WORK

BY MRS. S. E. HOWARD

[To the writer of this article has been accorded the title of "Bee Expert," as she is an authority on bee management from queen-rearing to honey-production. She is a member of the Massachusetts Society of Beekeepers, and also of the National Beekeepers' Association, and is an active worker, writer, and student. Mrs. Howard's success is due in a large measure to the increasing interest in bees in Massachusetts, and her influence has reached distant parts of the country from magazine articles (*McCall's*, *Country Life*, *Suburban Life*, *Country Gentleman*) recounting her experiences and methods. Her yards at Hill Crest, Wakefield, Mass., are models of neatness, and received the commendation of the Massachusetts Society of Beekeepers, which society she entertained August 3, 1912.—ED.]

I first became interested in bees through the gift of a colony in an old soap-box, nailed top and bottom, with a one-inch round hole at the bottom as an entrance. This I had removed to my back yard, and watched it (at a distance) for a season, and

hoped for a swarm to put into a new Langstroth hive with full sheets of foundation which I had provided for the "anticipated," which did not happen that season. During that first summer I watched, talked, and questioned, and read my A B C of Beekeeping, and thought I had the theoretical knowledge, but I lacked the courage to do the practical, which was to transfer that colony to a new hive. Fall came, and no provision made for surplus honey, and none was obtained, but the bees went into winter quarters with abundant stores, and were well protected. The winter months were used for more reading, and planning for the "spring moving" of the bees to their new tenement for which they afterward paid ample rent.

Looking forward to the plum and cherry bloom was a pleasant anticipation, as courage and determination had increased. The propitious day arrived: fruit-bloom, balmy air, and bees at work, and happy, with all conditions favorable. With my veil adjusted, smoker lighted, and hammer, chisel, and hiving-box ready, I proceeded as per directions. With the assistance of my husband (some help is needed by a woman) the en-



A typical "bee mistress" of the Cotswold Hills, England. The old picturesque straw skeps are rapidly disappearing, giving place to more practical modern equipment.

trance to the old hive was closed with a piece of wire screen, and then placed bottom side up, a few feet away from the old stand which was now supplied with a new hive with full sheets of foundation. I then gave the bees a few puffs of smoke and a vigorous drumming on the sides of the old box. After a few minutes' intermission to allow bees to fill up with honey, the bottom of the old hive was removed and the swarm-box placed over it, and bees rushed up into it. Taking it off was a revelation, five hundred or more queens appearing, which afterward proved to be drones not yet ready to fly.

The few steps to the old stand took but a moment, and the bees were shaken on to the frames of foundation, and the cover replaced. Back again for another "boxful," and also the queen if not in the first lot. I carried lot No. 2 to new hive and shook on to a sheet spread on the grass in front of the entrance, and watched for the "lady," whom, I then realized, I had not yet seen.

Soon the orderly marching of the bees in one general direction and into the hive convinced me of my success, and the work was complete; I was victor and I felt I could

do any thing with bees so high was my elation.

I have since had many perplexities, and have yet much to learn; indeed, the possibilities and wonders increase as I progress.

The result for that season was 60 lbs. of honey without a swarm from the hive which we named "Original, No. 1." The next year I divided and made nuclei and called them "Original, No. 2 and 3."

In my beginning I had descriptive names for colonies, given by circumstances and peculiarities, or they took the name of the party I obtained bees from, such as Smith, Wilkins, Daniel's hive, etc.

The accidental removal of the tip of a leg in clipping a queen's wing gave me "Clubfoot," which I especially valued, as she was wonderfully prolific, and bees were industrious, and were the show colony of the place.

From this beginning has been evolved Hill Crest apiary with an average of 50 colonies, and also plans for outyards and a queen-mating yard—all this from my back-yard venture. Hill Crest comprises three acres of fine land upon which I have had erected a double bungalow with piazzas

36 by 6. This is considered as a fruit-farm investment and a summer home, and is not charged up to the bees; in fact, I feel that they earn their rent by services rendered in fertilization of flowers, of small fruit and vegetables, shown by the increased crops.

As in farming, an accurate estimate or system of accounting is quite difficult, as present expenditures may not mature for years, as in apple-tree planting. As a fair estimate I place the income from a hive at \$15.00; yet I know that my own income is greater if I reckon the income from all sources, such as lecture work and writing and teaching, all of which the bee work fits and enables me to do.

My honey is in great local demand, and I am able to obtain five cents advance over the market price—thirty cents for comb and 45 cts. for a pint of extracted, all of which is put up and labeled as of finest quality.

My apiary is on a road much traveled by automobiles and on a car line, and I have a constantly increasing trade with autoists. The sale often reaches four or five boxes or jars to a party.

I have demonstrated that honey can be sold from house to house by a personal canvass, but have not had to practice it for the last two seasons.

Much of the yard manipulation I can accomplish alone, except for a little help in the rush season, and at such times I am able to get a school boy or a volunteer pupil who offers for the experience. Lifting can often be overcome by the use of a light box of ¼-inch stock built on Langstroth dimensions, this to receive part of the frames of the hive to be lifted, removed, or manipulated. My wheelbarrow is an invaluable aid to and from the yard, and as a stand in the yard to hold hive, tools, etc.

Little difficulty is experienced in hiving swarms, and I have been fortunate in keeping down swarming to a reasonable degree.

My approximate yard investment including bees, hives, and accessories, is about \$800—this from a \$25 start six years ago. I also carry about \$200 in new goods for sale to pupils and near-by beekeepers, and to draw from for my own use.

I found that work must be anticipated, and the right thing done at the right time; also that bees will exist under the most adverse conditions, but appreciate and respond to any attention to their betterment. I have also learned that one style of hive should be used exclusively, and I have settled down to the ten-frame dovetailed with Hoffmann staple-spaced frames.

I regard beekeeping as the ideal work for women, and it has opened up new fields and

opportunities to me socially and financially, and also a deeper perception of nature's ways.

Wakefield, Mass.

BEEKEEPING ON THE COTSWOLD HILLS

BY A. H. BOWEN

Last season, now happily over, was one of the worst in this district for some years. To the large apiarist the summer was a nightmare, as the weather from the first of June to the end of August was atrocious, and, with the exception of one fine week in July, honey-gathering was almost an impossibility. The sudden and heavy downpours in June drowned most of the foraging bees which should have been collecting honey during the few hot days which followed, so that the colonies which stored surplus were few and far between.

After a rather severe winter, bees on the whole came through in good form; and with the help of a little feeding they built up rapidly, the spring being unusually mild and favorable.

Around the "Garden Town," fruit-trees blossomed almost a month earlier than usual; and so forward was the season that, at the beginning of May, strong colonies were working hard in the supers. No rain fell for practically eight weeks, during which time the merry hum of the bees was heard from morn till night, taking every advantage of Nature's prodigality.

As a swarming season, 1912 will be remembered by many, especially by the straw-skep beekeepers, who averaged three to six swarms per hive. The first came out during the last week of April; and from thence until August there was a succession of swarms, the last being about the size of a duck's egg.

Those fortunate ones who made a practice of selling the swarms at \$3.00 each reaped a rich harvest.

Runaway swarms have been another feature of this changeable season. In some cases they rushed out without any warning, and flew straight away into some distant tower or oak tree; in others, they clustered a few minutes, and then decamped. I myself lost four swarms which flew away; but one from an adjoining apiary came and took possession of an empty "decoy" hive, several of which I keep in each apiary, and built up into a good colony.

Foul brood has been unusually rampant this season; and with hives packed with brood it spread in an alarming manner. However, by shaking all the worst colonies,

and treating the remainder with a new remedy, I have been able to keep this disease in check. If there is any thing which tends to propagate foul brood it is, in my opinion, a wet and cold summer, when but little honey is being gathered. Under these conditions the bees seem to lose both heart and energy, and the disease spreads like wild-fire through the whole apiary unless preventive measures are taken.

During the latter part of the season robbers were exceedingly troublesome, especially when removing supers: The robbing tendency was indeed so bad that most of the work accomplished had to be carried out in the evening, when flying had ceased for the day. The honey was extracted at night by the aid of a powerful lamp, thus avoiding any excitement in the apiary. At the last extracting I found it a good plan to stack up all the supers of wet combs until the bees had been fed up. They were then placed on the strongest hives to be cleaned out. From the best colony I took 50 lbs. of run honey, but the average yield was only about 10 lbs. per hive, while another apiarist with nearly 200 stocks did not harvest more than half a ton of honey.

Owing to the shortage, honey has been in good demand, though the price is not much higher than last season; and until the public ceases to treat honey as a luxury rather than a necessity the price in a poor year can not be advanced much without injuring the sale. The wholesale price in 1-lb. screw-top bottles ranges from \$1.92 to \$2.16 per dozen, according to quality, and sells retail at 10½ to 24 cts. per jar.

FEEDING SOFT CANDY.

My 80 colonies in ten-frame hives in September were found so destitute of stores that it took 500 lbs. of sugar boiled to syrup to feed them up. The feeders I use are lever-lid cans with about twenty small holes pierced in the lid. Owing to the chilly weather some refused to take down sufficient syrup, and to these were given a large cake of soft and "buttery" candy. This is made by bringing a quart of water to the boil, and adding 12 pounds of refined cane sugar, a teaspoonful of cream of tartar and a little salt. Allow it to simmer for ten minutes, remove it from the fire and stir until it begins to thicken, when it is poured into molds. This candy is beautifully smooth and soft; and as it will keep in this condition for months it is excellent for use in queen-cages.

For a serviceable hive-cover I use a flat telescopic roof with a three-inch rim covered with painted galvanized iron. This, I

consider, makes the finest covering, and it lasts a lifetime.

A COTSWOLD "BEE MISTRESS."

In the accompanying photographs a good idea may be obtained of a typical Cotswold bee-mistress, with her quaint cottage and row of skeps standing in a sheltered corner of the garden. The hand of time has fallen heavily upon the poor old bee-skep, and in a few years hence this picturesque home will have entirely disappeared from our old-world villages.

Cheltenham, England.

A WOMAN WHO HAS BEEN A BEEKEEPER NEARLY FORTY YEARS

BY MRS. ELLA STACKMAN

I am 61 years of age, and for over 39 years I have been engaged more or less in work with the bees or in the workshop, and sometimes with both. I began with four colonies of black bees in the old American hive. I purchased them of a neighbor who was so badly stung by them as to fear to have more experience with them. My husband gave reluctant consent to my having them, with the understanding that I should have the sole care of them, and that he should never be expected to have any thing to do with them; and I well remember how happy I was when they were ranged on a plank behind the house, and I became the proud possessor of them. With what delight I raised the cover which was over a pane of glass at the back of the hives, and looked into their little home, and how fervently I wished that there were some way that I could learn all about them!

A short time afterward I found a stray leaf of GLEANINGS among some waste paper. How eagerly I read and reread it! I sent for GLEANINGS and the A B C book, and began to learn something of the habits of bees. My husband, seeing the magazines and books lying about, soon picked them up and became interested, and, like the male sex in general, assumed with my free consent and approval the leading part in the business. So I shall say that we both began to think that we needed a better hive, and the combs built in frames.

We sent for samples of hives, and finally adopted the Langstroth. We have never regretted our choice, and I still think it the best ever. We chose the Hoffman L. frame and the Miller wide frame for holding eight 4¼ x 4¼ x 1⅞ section boxes.

My better half became more interested in a herd of fine Jerseys twelve years ago, when we left our village home, and moved to the farm. He then turned over what bees

we had at that time (20 colonies) to my sole care, and since then I have been engaged in supplying a few drug firms with bee poison in various forms, and raising honey as a side issue merely, as I have become, during these years, almost immune to the effects of stings.

I have never cut out a hive, but have done about every thing that was ever done with or for a bee. I nailed about all the hive frames and boxes; put foundation in boxes and frames; helped look over our apiary of about 100 to 200 colonies, about once in ten days, during the summer season; assisted in queen-rearing, selling, and shipping full colonies, nuclei, and pounds of bees; uncapped, extracted sometimes when necessary, and every thing else that could be done by a woman.

We exhibited for several years at our State fair, and took the first prize one year for the largest and best exhibit of comb honey ever placed in the building—1400 lbs., all in 1-lb. sections, and good enough to be classed No. 1 or "Fancy."

I sell at my door what honey I raise, and always enjoy very much a good talk with a brother or sister beekeeper. My husband complains sometimes that I enthuse people too much when I talk bees to them, which, perhaps, is true; but my happiest hours have been spent among them.

Auburn, Me., Aug. 22.

DETERMINATION HALF THE BATTLE IN BEE-KEEPING

BY ALICE TRIPP

I came to this country from Wales at an early age, with four older brothers and five sisters in the 70's. I had never eaten honey, nor had I ever seen a hive in my native country. In fact, I was in America several years before I saw a hive. But my brothers cut down countless trees that contained large quantities of honey, sometimes enough to fill a tub. While I liked to eat the honey I was always sorry that the industrious little workers had to be killed in order that we might get the honey.

I was delighted, when learning about the use of hives, to find that the surplus honey could be taken off for family use while the bees stored plenty in the bottom story for their own needs.

I resolved that, if I ever had a home of my own, I would own some hives full of bees.

But, alas! my better half could not be persuaded nor coaxed to let me keep bees. All is well that ends well, however.

One day when my husband was sick in bed I spied a new and strange-looking lump hanging from the limb of a tree across the road. Upon investigation I found it to be a swarm of bees. In a very few minutes I had fixed a box with cross-bars in the center. I mixed up some sugar and water, and wet the cross-bars and part of the inside of the box. I set the box on the ground, and spread out a sheet in front of it. I backed the buggy under the limb, and with a hand-saw cut off the limb and soon climbed out of the buggy with my prize. I placed the treasure gently on the sheet, close to the box. In less than two minutes the bees with the queen in the center were making a bee line for that box.

That was five years ago. I still have my box of bees. They are so docile that I don't try to make them produce much surplus honey, but use them for increase.

I now own 20 hives with movable frames. Although only nine are occupied, I hope to have all full before 1914. I also have three home-made hives containing bees, making 12 colonies at the beginning of 1913. I have had the misfortune to lose one colony nearly every winter.

I once noticed a query as to how a woman manages the heavy lifting. I admit that a ten-frame hive full of honey is all I want to tackle. I first pry the upper story very slowly with two screwdrivers (having nothing better); plant my feet in a good position, take a firm hold and a good breath and determine that I *can* lift it, and I always succeed. There is a good deal in thinking you *can* and *will*.

I extracted over nine gallons of honey from one colony in 1912. That was my best colony. Some came through the winter in poor condition. I don't make the same mistake twice, for I am in the business to stay.

Colo, Iowa.

SUITABLE COSTUME FOR HIVING A SWARM OF BEES

BY MRS. G. W. PERSONS

Last summer I hived a swarm of bees. It was a little after-swarm—about a quart of bees, I think, that came out in July. It hung on the limb of an almond tree all night; and the next morning, as my husband was going to an out-apiary he asked me to hive it about ten o'clock.

I first got a hive and put three frames containing full sheets of foundation and a division-board in it. This I set in a convenient place. By standing on a box and reaching up as high as I could I finally

managed to cut off the limb on which the bees were clustered. This I carried very carefully to the prepared hive; and with one or two quick vigorous shakes I got the bees on the ground at the entrance of the hive. Picking up a pebble I drummed on top of the hive, and soon all the bees were moving in a flock toward the entrance.

I watched them, drumming the while, until I saw the queen go in. I was fully rewarded for my trouble when I saw her, for she was a beautiful yellow virgin. Then, placing a raisin-tray against the hive to protect it from the hot sun, I left it. About five days later the queen was laying, then the hive was moved on a stand with other hives.

Before the season ended they had built themselves up into ten frames, and had filled an extracting-super with alfalfa honey.

When a woman thinks of bees, the utter unfitness of her clothing for the work is the first thing that occurs to her, and justly too, for low shoes and a flapping skirt seem to invite attack. I know whereof I speak. One experience in such clothes is enough. My bee-suit consists of a gymnasium suit with skirt, leggings, veil, and gloves. If I expect to be out in the apiary for only a short time I find that, instead of leggings, an extra pair of stockings with the feet cut off works well.

I bought a pattern and some khaki, and made the suit myself. I made the veil of khaki and wire cloth by taking a piece of the wire cloth 11 by 27 inches, and making a cylinder of it. Over one end and down the back was sewed a piece of khaki. The khaki over the back was for protection from the sun. At the lower edge of the cylinder was sewed a khaki skirt about eleven inches deep. The skirt was tucked inside my collar, and the bees were very effectually kept out. I wear gloves only when the bees are very cross. I find I can work much faster without them, and what do a few stings amount to, any way?

College City, California.

A WOMAN WHO KEEPS BEES BECAUSE SHE LIKES THEM

BY MRS. C. A. SIBLEY

If I had ever seen a honeybee previous to 1900 I did not know what it was. We moved here from Boston that year, and one day some one said that there was a swarm of bees down the road. So we went to see them. There was only one beekeeper in the neighborhood, and we sent him no word,

so the swarm hung there and dwindled just because we didn't know any better. But I talked about the "poor little things" until I was compelled to stop by remarks about "a bee in her bonnet," and "a vacuum under the bonnet."

There was some hay stacked in our meadow; and the next spring our beekeeper friend happening to meet me, he asked if he could buy the hay. When I mentioned his request to my husband he laughed and said, "As you have found a purchaser, complete the bargain and you may have whatever you get." Every one was amused when I exchanged it for a colony of bees. I still think I did not pay enough for those bees, for they have been worth a great deal to me. First, they gave me a new interest at a time when I was very homesick; also they have paid for our magazine and farm papers, for an incubator and brooder, and last fall they helped pay for the corn-harvester. We use an incredible amount of honey on our own table, and I do not know of any thing which so perfectly expresses friendship or sympathy under so many different circumstances as honey does. Our friends appreciate honey more than they do bees.

Of course there is some work that requires strength; but I manage the heavy lifting very easily. I let the men do it. They set the hives in and out of the cellar; but my daughter and I manage the swarms, which usually cluster on an apple tree. We carry out the kitchen table, then we carry out two chairs, a barrel (kept for the purpose), and the brooder-run. We put the table under the tree, the barrel on the table, the brooder-run on the barrel, and the hive on the brooder-run. We use the chairs ourselves, and climb from them to the table. Suppose some day we should put too much weight on the table-leaf and spill the edifice and its builders, and all because the queen's wings are not clipped. However, it is usually "a fine swarm," and is always put into a Danzenbaker hive. Of course, the hives come in the flat, and my son nails them together; and I am afraid he will have to until manufacturers list a hive body that can be put together with a needle and thread. I can't drive large nails very straight. My chickens run in the apiary, and never trouble the bees. Perhaps that is because the hives are set up a foot or more from the ground. Bushel crates make fine hive-stands in a pinch; but there is always a vigorous protest when the "men folks" see them. The hives are just high enough to work over easily. In June we put on the supers with full sheets of foundation. A piece of enamel cloth is placed

between the bees and the cover. One of us peels off the cloth, and the other slides on the super. We seldom use smoke for that; but we need it for removing bee-escapes. I asked Mr. Crane how he liked my smoker. He said he thought that kind was worth about ten cents a bushel. My suspicions are confirmed, and I shall have a new smoker.

Last season the honey-flow was poor in this locality. It was mainly from basswood. I secured a little more than 1000 salable sections from 31 colonies, fall count. There was no surplus from some of them. The local trade takes all my honey, and I could have sold much more. I am "fussy" about scraping, grading, and packing sections. Success in selling depends upon it.

Highgate, Vt.

MISTAKES OF AN AMATEUR

BY MRS. S. L. DORSETT

As I am a beginner in beekeeping, and made several mistakes during the first year, I send you this article, hoping it will help some one to avoid making these same mistakes.

In the spring of 1911 I purchased (from a person going out of the bee business) an outfit consisting of ten eight-frame hives, and two common box hives. There were three colonies of hybrids in eight-frame hives and one colony of leather-colored Italians in another eight-frame hive. There were Italians in one of the box hives also. In the other box hive the bees were so vicious that I never got near enough to them to know what kind they were. The outfit—bees, hives, and all—was delivered on my premises when the snow was about ten inches deep; and, not having a place prepared for them, they were set in a corner of the garden.

BEES FLYING BEFORE HIVES WERE PLACED
ON SUMMER STANDS.

About the 18th of March I had the box hives and the eight-frame hive of Italian bees placed where they were to stand all summer; but the hybrids were not moved until the last week in April. This I now look upon as a mistake, for the bees had been out enough to get their bearings, and kept going back to the place in the garden from which they had been moved, and sometimes the air seemed full of flying bees. I finally set a hive with empty frames at the place in the garden where the colonies had been, and at night there would be a nice cluster inside of the hive. About ten o'clock at night I would bring this hive and set it

over one of the four colonies with a queen-excluder under it, and next day I set another decoy hive in the garden, and at night brought that and the bees to another of the four colonies. I do not know whether I really helped the bees to find their homes or not; but at last there were no more bees flying aimlessly around in the garden. Two of these four colonies cast a swarm, and two stored nearly a superful of surplus honey.

QUEEN-CELLS NOT CUT OUT.

With my outfit there was one eight-frame hive of nice clean empty combs. Wishing to have the Italian bees build up strong I set this hive of empty combs on top of the eight-frame hive containing the colony of Italians in April, and on May 30 they cast a fine large swarm. Now, as I had not learned much about entrance-guards or cutting out queen-cells, I left the bees in the two-story hive, and in two weeks they had cast three after-swarms. I could not think it wise to put these back in the parent hive and kill such splendid young queens; and as I knew nothing about introducing I put each of these small swarms in a separate hive. Of course, by this time the parent hive had very few bees left, so I confined the queen to the bottom hive with a queen-excluder, and let the top story act as super; but they gave very few pounds of surplus after filling their hive nicely for winter.

This mistake proved even more disastrous than moving too late in spring or allowing the after-swarms. I had three after-swarms of splendid Italian bees with small patches of brood about as large as my hand, and scarcely any honey, so I decided to kill the vicious bees in a box hive and one colony of hybrids that had proved cross during the summer, and use these combs and stores for the after-swarms.

CROSS COLONIES AND HYBRIDS DESTROYED BY SULPHUR FUMES.

The last of October I had sand banked up around the two colonies; and, putting some coals in the smoker (another mistake, I presume), I then added a tablespoonful of sulphur for each hive, and drew away just enough sand to allow the mouth of the smoker to enter the entrance. I puffed the sulphur fumes into the hive for a couple of minutes, and drew the sand in place again, and left them until next day. Then the next day I had the old box cut away and then the combs were cut to fit the Hoffman frames. I filled one eight-frame hive with these. I then swept all the dead bees from the combs in the other eight-frame hive. Both hives were now ready, and I put one of the after-swarms into each hive and took

the other bees and swept part in each hive, paying no attention to the queen, supposing there would, of course, be a fight in the hive containing two queens until one was killed. I now had three frames from each of these after-swarms, with small patches of brood and a trifle of honey. I put these and one empty frame into an eight-frame hive and set it on top of a weak colony that had issued as a second swarm from the box hive of Italians. This colony was now put in a shed open to the south. This proved to be no mistake, as the following spring it was a strong colony.

The three colonies which had been united were a total loss. The hives were empty of honey in the spring. All the bees were dead in one hive, and there was little more than a handful in the other. I gave them two frames of brood and two frames of honey; but they were soon all dead, and the two frames of brood were lost also. I suppose they died out because I had taken from them their own larvæ; and the larvæ in the hives I put them in had been killed by the sulphur.

I wonder if there are many who have made so many mistakes in one year.

West Point Pleasant, N. J., Feb. 1.

A WOMAN WHO CAN DO ANY KIND OF WORK ABOUT THE APIARY

BY MRS. C. DISHMAN

There are many women, widows and married, in Texas, who have good locations on their farms and ranches for bees, who would be glad to keep bees if they understood the business; and to such women I would suggest that they get some literature on beekeeping, and a few colonies of bees, and read and practice with a few at first. Many will not have a location for very many colonies; but even a few colonies properly taken care of will furnish honey for family use (and some to spare now and then); and those who have good locations, and money to invest in the business quite extensively might employ an experienced beekeeper for one or two seasons; and by working with him, and reading up on beekeeping, they could soon be making their own spending money, or possibly making much or all of a family's support. Women who are situated so that they can keep a good apiary can give profitable employment to their children as they become large enough to work; and by so doing interest them in work at home. At the same time their help would save the expense of hired help.

I know the first thing a woman thinks of when she considers working with bees is that dreadful sting; but a good veil and gloves will protect her from that annoyance.

I always carry a smoker when I go to work with bees. I can have a swarm, wire frames, put in foundation, assort the combs, and do every thing I have tried to do about the work. I am not sure that I am handy enough with hammer and nails to put frames together as they should be; but my step-daughter can put them together nicely. Other women can do the same if necessary.

I can see no reason why women can not keep bees as successfully as men in many places in this west Texas country. If they will just go into it and stick to it they will be apt to find it pleasant and interesting, and in a few years they will have a very profitable business that will not necessarily interfere with housekeeping or poultry-raising, and such work as is usually carried on on ranches in this country. There is no extra expense in wintering bees in this country. We leave them on the same stands, winter and summer. This is very much in favor of women beekeepers on account of less lifting.

Del Rio, Tex.

How One Woman Extracted Honey Without an Extractor

I was ten years old when my father started my interest in bees. There was a swarm, and after it had settled he told me if I could hive it I might have it; and if I prospered in the bee business I was to call on him for a hive whenever I needed one. Well, I prospered, as we usually do in a work we love. Experience taught me that the bee in many ways is almost akin to man, inasmuch as it wants its own home, and wants to manage it itself. I also learned to work with the bee, and let it have its own way, always when possible and consistent.

I did not have the unique appliances that are now within the reach of beekeepers; and as I read and study about modern conveniences I wonder that, in my rude way, I prospered as well as I did. I never clipped the wings of my queens, nor did I meddle with them in any way; and I never needed to do it. So as far as I could see she was always at her post and capable. I never lost a swarm that I knew of, for I was a most vigilant observer in my apiary.

I had no honey-extractor, but extracted my honey and made my wax at once by setting comb honey in the oven, just hot enough to do the work, taking it out as soon as done, and, when cool, I had both extracted honey and beeswax in one vessel. I took off the wax in a solid cake, and put it into a pan of water, boiled it, and let it cool; then it was ready for use or for sale. The honey I passed through a sieve, and canned it ready for sale or use, fully 12 lbs. of pure honey to the gallon.

I have found in my experience that "eternal vigilance" pays in the bee business fully as well as in any other, and I can not see why the business will not become a success in the hands of any intelligent man or woman.

Ellwood City, Pa.

MRS. J. S. RAMSEY.

Heads of Grain from Different Fields

KEEP SWEET

BY IRMA TRUE SOPER

Feelin' sort o' cross and blue?
 Troubles can't be beat?
 Luck the worst you ever knew?
 Time to—jest "keep sweet."
 Toothache? headache? work ain't done?
 Can't keep things as neat
 As you'd like to? 'Tain't much fun;
 But—like bees—"keep sweet."
 Winter time may be too cold
 Jest to suit; but meet
 Old weatherman with smiles so bold—
 Like the bees, "keep sweet."
 May be 'tother way around—
 Don't like summer's heat;
 But you'll see much joy you've found
 If you'll jest "keep sweet."
 If you'll try it, then you'll find
 Troubles *can* be beat;
 Keep on bein' lovin', kind;
 Like the bees—"keep sweet."

Gladwin, Mich.

Comb Honey Sells Easier than Extracted Honey

We have always found that it pays much better to run our apiary for comb honey than for extracted. Comb honey almost sells itself. We never yet have had so much but that we could have easily sold more. One year we had 39,000 lbs. After it was sold, a man wanting a carload wrote us regarding the matter.

If our bees are strong in time for the clover harvest any honey harvest they will work in the sections without any trouble. Thus it is easier for us to make a specialty of comb honey than extracted. Very few persons want extracted honey if they can get comb honey, and they are always willing to pay more for comb honey.

At one time we feel that we have a good market for extracted honey worked up, and then there comes a failure of a honey crop. Our old customers forget how they had liked extracted, and so we have to teach them over and over again; but comb honey sells on sight. I think one reason for this is that it looks so well on the table.

Bulk comb or cut-out honey pays well. If some colonies are too weak to work in supers they can be induced to store cut-out honey by placing old sections at the side of the brood-nest with a slotted division-board at the side of the brood-combs.

CLEANING SUPERS AND HONEY-BOARDS.

For cleaning supers I put on the stove an old wash-boiler filled with water. As soon as it boils I add about a tenth of a can of lye, then put in a super. The propolis soon softens, and washes off easily. Turning it over and over, I rub it by means of a swab having a long handle until it is clean. I then put the super into a tub of water, and let it soak until I have cleaned another. If the propolis does not rub off easily, but just smears over, it is because there is not enough lye in the water. Keep the water near the boiling-point.

HOT-WEATHER SHELTER FOR BEES.

I prefer trees as shelter from the sun because they not only afford shade but allow the air to circulate around the hive, and in the winter, when the leaves have fallen, the warm sunshine on the hive gives the bees a chance to warm up somewhat, and to change their brood-nest if need be.

Roseville, Ill.

MRS. L. C. AXTELL.

How Rapidly Should Increase be Made?

Last September I purchased a beginner's outfit, Buckeye hive, etc. I should like to know how many colonies can be made from this colony, and how to go about it. I fed them sugar syrup, and they seem to be in first-class condition. What supers will fit the Buckeye hive?
 MISS EDITH F. MILLER.

Lake Geneva, Wis., Jan. 14.

[Before we could answer your letter fully we should have to know whether you wish to run these bees you have for increase alone or for some honey together with the increase. Ordinarily we think the latter plan is much the better one. An expert can run for increase alone, and increase one colony to fifteen or twenty under favorable circumstances; but we do not advise a beginner to attempt this. We think it is far better to allow the colony to swarm once, if natural swarming is allowed at all, and then prevent further increase, allowing both the swarm and the parent colony to produce honey. The next year the number of colonies can be doubled again, and so on. The trouble with making a rapid increase in one year is that there is likely to be trouble during the following winter, owing to the fact that many of the colonies will not be strong enough to winter profitably.]

If you intend to increase by artificial methods we would recommend the Alexander plan of making increase, as this plan possesses advantages that most other plans do not.

Any ten-frame super will fit your Buckeye hive, so that it really depends upon what style of supers you prefer.—ED.]

Daughters of Old Queens as Breeders

In May or June, 1910, I purchased a two-frame nucleus, and I now have three colonies of bees. Last year I lost the queen which I bought, but nevertheless my three colonies all have queens which are her daughters. I now want to know whether it will be all right to raise queens from them this year in making increase or would it be better to buy another queen to raise young queens from?

Slingerlands, N. Y.

MISS ALIDA M. PIER.

[If these daughters of the queen that you bought are purely mated, so that their bees are gentle and good workers, there is no reason why you should not breed from them the coming season. If the queens have mated with black drones, their workers will be irritable, of course. We should think one of them, at least, might be suitable to breed from. At any rate, breed from the best of the three. You would not necessarily breed from all the three, any way.—ED.]

Wintering Bees in Box Hives

I want to take up beekeeping. I have two old box hives. One is in a very sadly neglected condition. Some of the comb in it was broken when I received the bees. A good many bees were chilled and are dead, and I know that what are left will have to be fed. What can I do to get them through the winter? I am at a loss to know what to do with them as the weather in this climate is so changeable, and I don't want to lose them. The colony is not large.

I don't know when the queen is with them. How can I tell? Would it be of any use to know how?

Glencoe, Ky., Dec. 31.

MISS A. L. SCROGIN.

[We have our doubts as to whether you will be able to winter the colony you mention. After being moved as they were, and the combs broken down, the chances are that the bees will be dead before spring. As they are in box hives it will be practically impossible for you to tell whether the queen is with

them, or whether they have enough stores. Under the circumstances your best way would be to remove both hives to a well-ventilated dark cellar where the temperature will not go below forty degrees nor above fifty for any length of time. Then, because you are not sure, it would be best to feed warm sugar syrup, two parts of sugar to one of water. If you can get the top off the hive, feed this syrup in shallow dishes right next to the combs, and cover the top up in such a way that the bees can get to the syrup but can not get outside. Place the syrup in the hive late in the afternoon, so that by morning the bees will have quieted down somewhat. We recommend this, owing to the fact that the syrup stimulates the bees and stirs them up considerably, and in the day time they would be likely to fly out and die on the cellar floor. Candy would be safer.—ED.]

Minimum Yield of \$10.00 Per Colony

I have been keeping bees for the past six years with good results. My bees never average me less than \$10.00 a colony, even though we are "away down by the sea." We have great bee feed in the far-famed Bay of Fundy marshes that abound in white clover of the finest quality.

MISS JULIA A. CORBETT.

Amherst Point, Nova Scotia.

Extracting Unripened Honey; Proportion of Water in Honey and Nectar; Where to Store Extracted Honey

Dear Sirs:—Will honey that is extracted when bees are just beginning to seal it ripen in open tanks?

What proportions of honey and water do you take to make it the consistency of nectar?

Do you think it would be all right to store extracted honey after it is in cans, in a dry cement cellar, with plenty of ventilation, and with a cistern in it?

MRS. ALICE BURROWS.

Oran, N. Y., Feb. 2

[With proper facilities for ripening the honey artificially it can undoubtedly be done; but, at the same time, we do not feel like recommending the practice ordinarily. It is better, of course, if you wait until the bees have begun to seal the honey; but we think it is still better, all things considered, if the honey is nearly all sealed before it is extracted.

For the purpose of feeding back, extracted honey is usually thinned down so that the mixture is about 75 per cent of honey and 25 of water. However, such a mixture is not as thin as nectar by any means. Figures regarding the amount of water in nectar vary so much that it is difficult to arrive at definite conclusions. For instance, in the A B C and X Y Z of Bee Culture the percentage of water in four different kinds of nectar varies from 59 to 93 per cent. However, since three of the nectars contain more than 80 per cent of water it may be safe to consider 85 per cent as a safe average of the amount of water in nectar. The average honey may be said to consist of 80 per cent of solids and 20 per cent of water. Now, then, to find the amount of water that must be added to honey to reduce it to the consistency of nectar is a simple problem.

Starting with honey we have a liquid which is approximately 80 per cent solids. We wish to add enough water so that we have a liquid which is only 15 per cent solids, since, as we have explained above, we have selected 85 per cent as being an average amount of water in nectar. Supposing we take ten pounds of honey. Eight pounds of that amount is solids. Now, eight pounds is 80 per cent of ten, and 15 per cent of 53. We must add enough water to our ten pounds of honey, therefore, to bring the weight up to 53. Approximately, therefore, we must add 40 pounds of water—that is, four times the weight of the honey in question.

After honey is in cans, and the cans are sealed, it does not make very much difference where it is stored provided the atmosphere is dry so that the tin will not rust badly. Other things being equal, we should say that the warmer the room where honey of any kind is stored the better.—ED.]

Starting with Three Colonies and Producing 2209 Pounds of Honey the Fourth Year

We secured 2209 lbs. of extracted honey last year from 19 colonies of bees, spring count, in spite of the drouth. We have sold 1900 lbs. at 10 cts., and kept 300 lbs. for our own use.

Our bees seem to be wintering in good order on their summer stands, although we lost a good many during the last cold spell, when the mercury went to six degrees below zero on the 8th of January. We have now 32 colonies, and this is our fourth year, with a start of three stands; that is, we have kept bees for four seasons.

Altus, Okla., Jan. 15.

JAMES G. REID.

Rye Crop as a Substitute for Pollen

I feed my bees rye chop as a substitute for pollen. About the last of February or early in March we have the alder here. It blooms very early, and furnishes an abundance of pollen; but my bees start brood-rearing before the alder blooms, and search everywhere for a bit of chop or meal. It is cool some days; and if I did not feed them chop they would hustle out in search of pollen, become chilled, and die. When the weather begins to get warm, and I notice my bees searching feed-troughs and such places, I have some rye ground fine, and put it in pails or pans, and on warm days set it out in some sunny place. Thousands of bees will soon be working at it in a short time. Feeding rye chop has a direct effect on brood-rearing, as the bees could not do much without pollen or a substitute for it.

About the first of March, if the weather is favorable, I also feed my bees a syrup made of equal parts of granulated sugar and water, to stimulate brood-rearing if the weather is favorable. I think it pays to stimulate brood-rearing in the early spring, so as to have every colony strong in bees, and ready for the honey-flow.

Ethelfelts, Va., Nov. 26.

D. M. BRYANT.

SUMMER'S MUSIC

BY ANNA M. CRAWFORD

Some love the song of the babbling brook,

As it ripples along on its way;

Some love the songs of the merry birds

That sing through the livelong day.

All this is the music of Nature's choir,

That tells of a life so free;

But give me the lull of the sighing wind

And the drone of the honey-bee.

These are the sounds which bring to my heart

The joys of a time to come—

Of buckwheat cakes on a winter's morn,

And sweets that drip from the comb.

And they also bring, with their buzz and hum,

The days of long ago,

When I wandered in childhood's meadow land

Through the fields where wild flowers grow.

Then future and past blend all in one;

And 'tis present joy that gleams

As I drowsily, lazily float away

To a land of beautiful dreams.

And I'm sure all the labor of life I've done

Is naught when compared with these,

For the greatest lesson of life is learned

From the hum of the honey-bees.

Denver, Col.

Our Homes

A. I. ROOT

Blessed are the peacemakers, for they shall be called the children of God.—MATT. 5:9.

Our readers will recall how much I have had to say of late in regard to the need of peace and harmony between Prohibitionists and the Anti-saloon League—see p. 604, GLEANINGS for Sept. 15, and Homes of Nov. 1. Well, just before I left Ohio, Daniel A. Poling, Prohibition candidate for governor of Ohio, gave an address in Medina to a very small audience. It rejoiced my heart to find a man representing the party who had nothing but kind words for the Anti-saloon League, and next morning I had a long friendly talk with him. Well, to be brief, the *American Advance* has just gone into the hands of an "Advance" Publishing Co., and elected our good friend Poling President of said company. The clipping below from the *American Advance* of Feb. 1 explains itself. Once more may God be praised for answering my prayers, and for having raised up a Moses to lead his children "out of the wilderness."

THE HANDCLASP VS. THE HAMMER.

Are the battering-ram and the big stick effective vote winners?

Should they be used indiscriminately in assault upon the enemy and in the recruiting quarters of our civic reform army as well?

There is no livelier question before the friends of prohibition at the present hour; and so well is it handled and answered by our clear-visioned young president, Mr. Daniel A. Poling, that we here give in full his views on the subject as detailed at the national conference Friday afternoon, January 17. We most emphatically agree with their spirit, their logic, and their practical timeliness in this hour when we realize as never before how gracious is our opportunity to increase our forces a hundred fold by earnest, sincere, broad-minded optimistic invitation.

Mr. Poling's remarks were specifically upon the topic, "The Attitude to be Assumed by the Prohibition Party toward Non-partisan Organizations." He said:

I am a party Prohibitionist. I hold no brief to-day for the non-partisan organizations. But uppermost in my mind and heart is the desire and consuming passion that our cause shall triumph. And let it be distinctly understood that I speak to myself as well as to you. It must also be borne in mind as I proceed, that I am not presenting the philosophy of the Prohibition party; that I am not expounding and defending the principles of our organization. My subject and the limit of time demand that I speak only on "Our Attitude toward Non-partisan Organizations." This is the subject assigned me.

1. What has been the attitude of the Prohibition party toward non-partisan organizations? Too frequently it has been that of the Pharisee. We have congratulated ourselves that we were not as other men. With irony and bitterness we have held ourselves aloof, and our political condemnation has been as was the spiritual condemnation of the Pharisee of old—we have not come down from the ballot-box justified!

We have denied to the non-partisan organization its very claim to efficiency. We have scoffed at white maps, declaring that the campaigns they represented

amounted to nothing, and have then demonstrated the fallacy of our position by pointing out the decline of the non-partisan movement when a dry county has gone back into the wet column. If the non-partisan movements had done nothing more than call out from the ranks of silence Hobson and Hanley and Folk and Blair and Stubbs and Littlefield, they would not have lived in vain.

Too frequently we have refused to co-operate in local fights where the issue was drawn squarely between the saloon and the home, between corruption and righteousness, between good government and bad, because we have insisted that the *law* under which the voters were acting was inconsistent and not in harmony with our party principles and the true philosophy of the great reform.

We have made indiscriminate and all-inclusive charges where we have not been able to establish our case in court. We have indulged in personalities—have, in some cases, elevated them to the plane of issues, and our charges have been couched in such generalities that ten times ten thousand men as sincere and brave and honest and unselfish as we can possibly be have had occasion to take personal offense. Our opportunity to reach and marshal them in a conquering political host has been destroyed.

The national speakers and the national press of the liquor organizations vie with each other in searching out and quoting the defamatory utterances of the Prohibition party when they direct their venom against the Anti-saloon League. As for myself, from this day forth I shall guard my tongue and check my pen that the common foe may find no missile of mine to hurl against the onswEEPing hosts of civic righteousness. There is a time for honest differences; there is a place for the frank and rugged discussion of conflicting methods in order that the right plan be found. That time is not in the heat of conflict; that place is not on the firing-line. I speak that which I do know when I say that there are countless men and women in the Anti-saloon League and other non-partisan movements whose souls are as clean and unselfish as the souls of the martyrs whose memories are my political inspiration. I am convinced that in the future we shall make progress only as we eliminate strife from among the temperance forces when they are engaging the enemy. *We must purify our spirit.*

Amos R. Wells, editor of the *Christian Endeavor World*, who voted the Prohibition ticket for the first time this year, received more cantankerous criticisms—ten to one—because he had not "always been with us" than letters of welcome and commendation because of his present "good confession." And he remarks, tritely, "Brethren, those letters go far toward explaining the small size of the Prohibition party."

The Prohibition party will never succeed by bitter and unrestrained criticisms of organizations that differ with it as to method, but stand with it for the destruction of the liquor traffic. The Prohibition party will never succeed by "rough tactics," by vitriolic denunciations, in winning the temperance men of the nation who are not giving it their approval and support.

We shall make progress faster and bring nearer more rapidly the victory's dawning by using our full strength in showing the wisdom and power of our way rather than by "showing up" the real or fancied weaknesses of the other ways. It is possible to insult the intelligence of men by trying to tell them too much. Nine times out of ten, indirect suggestion is more effective than direct. And when we are sorely tempted, when we are refused by those who should be our voting friends, let us remember that "charity suffereth long and is kind." *Out of*

these very furnaces of expediency and denial will come the tempered metal of the final test.

WHAT OF THE FUTURE?

Our attitude must be the attitude of a big man with a big task—a task that he is conscious of not having completed. Such a man is glad for suggestions, is willing to consider new plans, is ready to exchange outgrown policies for more effective methods. He will sacrifice every thing—his pet schemes, his personal desires, his long-established judgments—every thing save *principle*, for the consummation of the truth. I have never been more firmly established in the faith that the liquor institution will not be destroyed until we elect to power a political party committed to its destruction. Upon this rock I stand, but I will not impute spurious motives to the man who is not with me agreed. *Win him* I will if I can.

Our attitude must be the attitude of a sincere organization that has made mistakes—for we have made grave mistakes, and we should not be inclined to throw stones.

Our attitude must be the attitude of an organization conscious that it is responsible for electing, as well as for electrocuting; for winning, as well as for skinning! The intelligent, patriotic voters of the United States of America, the men and women who are thinking temperance to-day, will not be driven or coerced. They must be won.

Our attitude must be the attitude of an organization so conscious of its place and motive that it seeks opportunities to co-operate with all other temperance and no-liquor organizations in programs of common agreement. By so doing, far from losing our identity, we emphasize it. And, men of the Prohibition party, Ohio leads the way. In co-operation with the W. C. T. U., the Christian Endeavorers, the Sunday-schools, and the Anti-saloon League she has adopted as part of her educational propaganda *The Voters' Information Bureau* established by the W. C. T. U., and superintended by Mrs. Lillian Burt of that organization. This bureau, I am convinced, will do more to develop intelligent and permanent anti-liquor sentiment among the masses that will eventually crystallize into votes than any other movement that has arisen in this generation.

Our attitude must be the attitude of an organization too busy to gossip. We do well to remember that the gossip is always despised.

And finally, brethren! The attitude of the Prohibition party must be the attitude of an organization conscious that it has a positive, progressive, constructive program vital to the life of the republic. And in this spirit, with the faith of the fathers, and building better than they knew, let us give to the temperance and Prohibition hosts the slogan of war—*The liquor institution must be destroyed, and there shall be no fratricidal strife.*

High-pressure Gardening

THE HIGH COST OF LIVING, ETC.; SOMETHING ABOUT GOD'S NEW AND PRECIOUS GIFTS.

To-day is January 2, 1913, and so far it has been indeed a happy New Year to me. Let me tell you a few things that have made me happy. On New Year's day a beautiful lot of Buttercup chickens came out of the incubator, and on that same day one of my Indian Runner ducks that *would sit* brought out a brood of ducklings, hatching every egg. I tell you it is wonderfully nice and enjoyable to have a nice little room for a new brood of chicks and another nice room for a brood of ducklings; and then a nice little yard adjoining each one of them. My first brood of Buttercups are now a little over three weeks old; and when I open the door in the morning to let them go out they go out on the wing. The doorstep is a little bit high, so they have learned, in order to save the trouble of climbing over it, just to spread their gauzy wings and sail out like a Wright flying-machine, for all the world. Now another thing that makes them so handsome is their spotted wings, looking for all the world like a brood of partridges. Besides, we have a very pretty garden of sweet potatoes, common potatoes, early peas, lettuce, mustard for the chickens, etc. The thing that has made me happy and set me to thanking God most of all, *just now*, is a new vegetable sent out by the Department of Agriculture. I saw it mentioned in some of the rural Florida papers, and so I sent to Washington and asked them if they

could furnish me some of the tubers. The night before Christmas, when I went to the postoffice I found in my box a card saying, "Package too large to go in the box. Present at the office." This was Christmas eve, remember. When I presented my card, a little bag holding perhaps a couple of quarts of something that looked like potatoes was handed me. I at once decided that it was the new "dasheen," and I also decided that, of all the Christmas presents I have had in seventy years, I do not know that I have ever gotten hold of one that I liked more than this little bag of dasheen. In order to tell you all about it, I am going to quote the printed matter sent me by the Department of Agriculture at Washington:

THE DASHEEN; A NEW ROOT CROP FOR THE SOUTH.

The dasheen is a vegetable from the tropics, related to the ornamental caladium, or elephant-ear, the Hawaiian taro, and to the semi-wild taniar of our southern States. It is much superior to the taniar in quality, and is as easily cooked as the potato. It is one of the great staple food plants of the tropics. Its tubers are similar to the potato in composition, but are drier, and contain from 35 to 75 per cent more protein. The flavor of the cooked tubers is slightly suggestive of boiled chestnuts. Dasheens are baked, boiled, or otherwise cooked, like potatoes.

Dasheens when baked are richer in flavor than baked potatoes. After boiling they may be French fried, mashed, made into croquettes, or used as stuffing for chicken, veal, or other meats.

Although the tubers of the best varieties are not acid, there is always some danger of an acid variety being mixed with them; and for this reason it is better *never to taste the raw tubers*. The burning sensation, caused by this acidity when present, may not be felt for a minute or more after tasting.

Where the frostless season is less than five months, the tubers for planting should be started in sand under glass. Harvesting should be done before frost, and the tubers allowed to dry in the shade for several days before storing.

In storage the tubers must be kept dry, and a free circulation of air allowed among them. They should, therefore, be spread out in rather thin layers. The corms (large central "tubers") are more liable to decay than are the smaller tubers.

The leaves of the dasheen make an excellent substitute for spinach or other greens. On account of their acidity, however, they should *never be tasted raw*. Only the blade of the leaf is used. Of this, remove the thick portion of the midrib, and then boil for not less than 12 to 15 minutes in water to which baking soda at the rate of one teaspoonful to a quart of water has been added. Drain off the soda water, wash with clear boiling water, and then boil for 45 minutes in water seasoned with salt. Other seasoning may be added as desired. Dasheen greens are also cooked by boiling for about 30 minutes with fat meat. Soda is unnecessary with this method. The petioles, or leaf stems, cooked separately from the leaf blades, make a delicious dish. The same methods of cooking may be used, except that, when soda is used, it is better to pour on cold water for the second boiling, and boil for only 15 minutes.

THE DASHEEN AS A CROP, AND ITS INTRODUCTION INTO THE UNITED STATES.

The first experiments made by the Department of Agriculture in the culture of the dasheen, taro, and related root crops, were at the Porto Rico and Hawaii Experiment Stations. A considerable number of varieties from tropical America were collected at the former station, and variety tests were conducted. Following this, in 1905, specimens of the entire collection were brought to Washington and grown in the Department greenhouses. Additions were made to the collection from all parts of the tropics and the Orient, until there has been assembled what is doubtless the largest collection in the world of these useful plants.

From 1906 to 1909 small co-operative experiments in growing these root crops were made in nearly all the southern States, but without very definite results until the latter year, when a one-sixth-acre plot in rich bottom land in Berkeley County, South Carolina, produced 50 bushels of tubers. The most important feature of that year's work was the demonstration that, of all the varieties tested, certain dasheens, which were originally obtained from the Island of Trinidad, British West Indies, were among the best in point of yield, and greatly superior to all others in quality. These Trinidad dasheens, planted 3 to 4 feet apart, produced an average of 7 pounds to the hill, or at the rate of over 400 bushels per acre.

The next season was unfavorable, and satisfactory results were not obtained at the South Carolina plantation; but a preliminary experiment in freshly broken rich "hammock" land at the new Plant Introduction Garden of the Department at Brooksville, Fla., showed that conditions there were favorable for dasheen culture, and in the spring of 1911 a half-acre of heavy-yielding varieties was planted. The half-acre at Brooksville yielded 225 bushels of tubers. About one-third of this was of the Trinidad variety. The soil is a black, very rich sandy loam. Two light applications of fertilizer were made, in the middle and latter parts of the season. Harvesting was done early in November, the crop having had a season of about seven months.

It is no longer a question whether the dasheen will find favor in the United States. It has been served repeatedly on the tables of some of the most fastidious, and has been pronounced a valuable addition to the menu. It was successfully served at the

annual banquet of the National Geographic Society in Washington in January, 1911, and, after a special test, was reported upon favorably by the house committee of an influential New York club.

The Department believes that all southern home gardens having suitable conditions of soil and moisture should contain at least a small area of dasheens, and that a regular market for the surplus over what is needed for home consumption can quickly be created when a steady supply is available.

The little bag which was my Christmas present contained just nineteen tubers; and although these little tubers were very precious, at least to me, I decided that we would have to make a test of one of the smaller ones by having it baked for breakfast. So on Christmas morning we had our first feast of the new potato, or whatever you might call it, served for breakfast. The tuber is remarkably hard and solid. I think they are heavier for the bulk than any potato. When I tell you that the first taste convinced me that it was the most delicious baked potato I ever got hold of in my life, that does not half tell it. Mrs. Root quite agreed with me, although she isn't gifted in becoming over-enthusiastic on new and comparatively untried things. The remaining eighteen tubers were carefully planted, and at this date, Jan. 17, they have all begun to sprout, but none of them are, as yet, above ground. Some of my friends who have read our new potato-book will see what I had to say about my roasted-chestnut potato of years ago. Well, this dasheen resembles that roasted-chestnut potato more than any thing else I have ever gotten hold of. It was so dry and mealy that, when mashed with a fork, the inside rolled out as fine as flour, and looked about as white as flour. I am sure it will prove to be one of the most nourishing and most delicious articles of food that our heavenly Father has ever given to his children.

I have in years past been enthusiastic about a great many new fruits and vegetables, as our older readers may recall. Many of them, it is true, have not quite come up to my expectations. Some of them, although they flourish in the locality where they originated, do not seem to do so well when moved to other places. The Gault raspberry, perhaps, is an illustration of one of this type.

Some of our older readers may remember how enthusiastic I was in regard to the Kumerle lima beans. On getting a 25-cent package of these beans and testing them for quality I became so enamored with the new bean that I finally offered their weight in gold for a few of the precious seeds. The Livingston Seed Company of Columbus, Ohio, finally agreed to part with \$75.00 worth of these Kumerle beans for their

weight in gold. They were impressed similarly to myself. It soon transpired that this bean succeeded in only a few localities, and even then only under extremely favorable seasons. After trying in vain to grow it in sufficient quantities so as to make each reader of GLEANINGS a present of a few of these wonderfully luscious beans, I gave it up; but three or four years afterward, when we had a season that just *suit*ed it, I grew quite a considerable crop. Another thing, it didn't always produce beans of such wonderful excellent quality on all sorts of soils. This is something that we have all had to learn in testing new things.

I was one of the first to demonstrate that celery could be grown on our Medina County soil. Now the crop grown in that region amounts to many thousands of dollars.

The Grand Rapids lettuce, that I discovered and introduced to the world, and gave it its name, has also been the means of furnishing the material for a great industry, for there are now *acres* and *acres* of Grand Rapids* lettuce grown *under glass* in Ohio alone. I do not know how many acres there are in other States devoted to this at the present time.

In a letter that I have recently received from the Department of Agriculture, they promise to furnish me more tubers if I can make use of them. Now, I tell you confidentially what my plan is. As soon as I can get enough of them I want to make a present of a dasheen tuber to every reader of GLEANINGS—that is, to every one who sends the subscription price for one year. It seems to be more exactly suitable for Florida soil and Florida conditions than for any other part of the United States. If I can only make it grow as we are now making sweet potatoes grow, I shall be indeed happy. Before we went home last spring we got some sweet-potato vines over at neighbor Rood's, and just cut them up into short pieces and planted them throughout our garden, where other crops had been gathered off. Well, they had little care during the summer; but when we came back in November we found such a great crop of sweet potatoes that we had all we could use, and enough to give the neighbors, right and left. May God be praised for the sweet potato, and more for the great dasheen which is just now being disseminated throughout our land.

The sorghum or sugar cane that the Department of Agriculture introduced something like forty years ago, produced on rather poor clay soil a quality of cane that made a most delicious syrup. The same sugar cane, when grown on rich bottom land, produced a syrup or sugar that most people would call hardly worth putting on the table. Let us now go back to the dasheen.

At our weekly prayer-meeting I mentioned the dasheen as one of God's new and most precious gifts to men. Our good pastor told me that the excitement was so great around Brooksville, Fla., where the Department of Agriculture has been carrying on test gardens, that it has really been the means of building up the place from what before was an obscure village; and as this new vegetable seems to succeed better so far in Florida than anywhere else, there seems great promise that it shall mean the building up of the whole State of Florida. Just think of it! The most delicious tuber that has ever been given to mankind, yielding at the rate of four or five hundred bushels to the acre!

In speaking of God's gifts, let me repeat a little instance that occurred when I was in California. A real-estate dealer, after asking me a multitude of questions, and finding he could not sell me any real estate, finally said, "Well, stranger, what is your occupation? What do you do for a living, may I be permitted to inquire?" I replied to him that my occupation just then was hunting up God's gifts. He looked at me a little while, thinking perhaps I was half crazy or something of that sort. But he finally asked, "Well, stranger, if you are hunting God's gifts, I take it for granted you don't find many of them up here in this desert."

I replied that I had been delighted from morning to night in finding such an innumerable number of God's greatest and most precious gifts, and I hoped to be able to spend the rest of my days in this wonderfully exciting and happy occupation of searching God's great wide universe for his wonderful gifts to men.

By the way, can any of my readers tell me whether any seed catalog they have gotten hold of mentions the dasheen? Have the seedsmen of our land gotten hold of it? If anybody has had any experience along that line, or grown dasheen or something resembling it, I should be very glad indeed to have the full particulars.

* In an article about "Truck Farming Under Glass," *The Country Gentleman* says: "The Grand Rapids lettuce has revolutionized the culture of this most important greenhouse crop."

Gleanings in Bee Culture

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Editorial

IOWA FOUL-BROOD LAW; ATTENTION, IOWA BEEKEEPERS!

THE beekeepers of Iowa are trying to get appropriations for their foul-brood law. It seems they had a law passed, but it carried no appropriation. Every beekeeper in Iowa is requested either to see or write to his Senator or Representative at once, and explain the great need of an appropriation for the foul-brood law already on the statute-books, but which is practically non-operative by reason of no money for carrying on the work of inspection.

SENDING BEES WITHOUT COMBS.

WE must again caution beekeepers against trying to send bees by parcel post. From the amount of correspondence that has been coming in, many people appear to be getting wild about shipping bees without combs. They either do not take GLEANINGS or fail to read our repeated admonitions, and send bees in any kind of box by parcel post. As not all postmasters have read the parcel-post regulations, some of them accept packages of bees in the mails; and if this continues we are liable to have even queen-bees barred. Sending bees in pound packages is a science. We are perfectly willing to tell beekeepers how to do it if they will write us.

A FRUIT-GROWER WHO KNOWS WHAT HE IS TALKING ABOUT.

ONE of our subscribers, Mr. Elias Fox, of Union Center, Wis., has called our attention to the following clipping from *The Fruitman and Gardener*, published at Mt. Vernon, Iowa, taken from their January "Special Spraying" issue:

Never use poison sprays when the fruit trees are in bloom. Just before and just after is the time for spraying.

You injure rather than help your crop by spraying during bloom. Those few days are sacred to the work of pollination.

And the bees, your best friends in that work, must have a clear field. It is adding cruelty to folly to kill your friends at the moment they are doing you a good turn.

Mr. Fox wishes that all journals devoted to fruit-growing in the country would copy

this. We, too, wish that they would, for the item, though short, is right to the point. As it comes from a journal not especially prejudiced in favor of bees, it has all the more weight.

BEE INSPECTION IN CONNECTICUT; A LARGER APPROPRIATION NEEDED.

ACCORDING to that part of the report of the Connecticut Agricultural Experiment Station having to do with bees, we note that the two inspectors, A. W. Yates and H. W. Coley, made an effort during 1912 to inspect those portions of the State not previously covered in this work. European foul brood was found in Litchfield, Norwich, and New London counties.

The appropriation in the States is only \$300, so it is impossible to cover all the ground in one year. At the last convention, however, beekeepers voted to ask for an increased appropriation, and also for certain changes in the law which will make it possible to inspect without complaint, and to place a quarantine upon diseased apiaries. Another change asked for is that a certificate of good health be required to accompany every shipment of bees, whether brought into the State from without or moved from one point to another within the State.

The inspectors barely kept within the appropriation, the total cost of the year's work amounting to \$299.80. The average cost of inspection per colony was 21 cts. Fourteen hundred and thirty-one colonies were inspected in 153 apiaries, and 337 colonies were found diseased with European foul brood in 73 apiaries.

WINDBREAKS AND WINTERING.

WE wish to indorse as heartily as we can the statements made by Mr. Byer, on page 181, of this issue, on the subject of natural windbreaks versus board fences. As we have said before, we believe suitable windbreaks are almost as important factors in wintering as packed double walls. The best-sheltered location—indeed, one that is ideal, in our opinion—is one that is surrounded by low shrubbery or trees—enough so as to

break the force of the wind. When a solid board fence is used, the wind glances upward, is caught by the onward current, bounds downward, hitting one or more rows of hives, with the result that such row will suffer a much greater mortality than the others.

CARELESSNESS IN GRADING.

A SHORT time ago we received a letter from a prominent dealer in New York handling honey, butter, cheese, eggs, etc., complaining in regard to the way in which most producers grade their honey. We give herewith a part of the letter referring to this matter:

There are very few producers of honey in New York State who grade their honey honestly. It is to be regretted, but it remains a fact just the same; and we are unable to make any impression on the graders and producers by any thing that we can write them. Most graders seem to think it is the proper thing to work off a certain percentage in their No. 2 honey in their No. 1 grade, and they do not stop to realize that, by packing their honey in that way, they lose money by doing it.

We doubt whether the producers should be called dishonest, for we think it is more often carelessness or ignorance that accounts for the improper grading. It is, of course, a serious matter; for, from the standpoint of dollars and cents, it means a distinct loss to the producer when his grading is badly done.

THE NEW FOUL-BROOD BILL BEFORE THE LEGISLATURE OF MICHIGAN.

THE beekeepers of Michigan are trying to get a foul-brood law that is more effective than they have had in the past. Every beekeeper in Michigan should immediately write to his Senator and Representative asking for his unqualified support to the bee-disease bill (House bill No. 343) that is now pending before the General Assembly. Explain that bee disease is rapidly spreading all over the United States and Canada, and that it is very necessary that the State of Michigan should have a law that will protect her against the inroads of the disease from other States. Prompt and decisive action on the part of all the beekeepers of the State should be taken at once. The States bordering have much better laws, and it is high time that Michigan should have as good a law as her sister States.

DOUBLING THE STRENGTH OF COLONIES DURING MIDWINTER.

We would call attention to an interesting article by G. T. Whitten, in this issue, on the subject of building up colonies indoors by feeding, and providing a means for flight in a wire-cloth cage. Years ago A. I. Root

succeeded in making colonies in a greenhouse rear brood during cold weather. The bees finally learned to fly out and go back to their hives. While, of course, some were lost, yet brood-rearing continued. Mr. Whitten may have made an improvement in that he uses a small wire-cloth cage into which the bees may fly—so small indeed they may then go back into their hives. Although he does not say so, we take it that at such times they void their feces.

While we do not believe it would be practical for every one to rear brood under the conditions named in Mr. Whitten's article, yet it might be possible for small beekeepers to save a few of their colonies having a mere handful of bees each. The thing is worth trying, for the amount of fuel required would not be large. When there is only one colony, the living-room might be used; but if there are a dozen, a room would have to be prepared with suitable means for ventilation.

We shall be glad to get reports from any of our subscribers who have tried out this plan; and in conclusion we may venture to suggest that not many will be able to succeed as well as Mr. Whitten has done.

THE EFFECT OF SUGAR IN EXCESSIVE AMOUNTS ON THE HUMAN SYSTEM.

IN the January issue of *The Technical World Magazine*, page 516, is an article by Bailey Millard entitled "Our Great Sugar Debauch." We wish every one of our readers might secure a copy for the purpose of reading this article, for it is an astonishing revelation of the enormous quantity of sugar consumed in the United States, and of the bad effect which this excessive use of sugar has on the system. We are prejudiced, of course; but in our opinion the writer should have offered as a solution the substitution of honey for so much sugar. However, even as it stands, the deleterious effect on the health is evident.

The opinions of specialists are quoted, showing that "The bad effects ascribed to sugar as a food are due to its use in larger quantities than three to four ounces a day. . . . The average person eats about three times as much cane sugar as he should." . . . "Many a factory girl and department-store saleswoman makes her entire luncheon from starchy wheat cakes swimming in maple, cane, or corn syrup, and no other dish." The unfortunate girls who work in the candy-factories "are not a healthy-looking lot; and, though plump enough, they are pale of cheek and listless of eye. Sugar inebriates all, with bad stomachs and bad livers."

Referring to the candy sold in shops, the writer says that of 250 samples bought for examination by government chemists "not one was found to be pure, and nearly all had either aniline or coal-tar colors, glucose or terra alba in them, while many had all of these valuable(?) food elements. Even if all candy were pure—that is, if it were composed wholly of sugar, mixed or coated with other edible constituents—it would be unsafe for the average child to gorge himself with it."

Some sound advice is given along the line of allowing children to gratify their natural craving for sugar by eating such foods as dates, figs, prunes, etc.; and we wish that honey had been included; for it is a fact that, perhaps, no scientific man will deny that honey, being an invert sugar—that is, grape sugar—does not have the deleterious effect on the health that cane sugar does, whether made of the sugar cane, sugar beet, or maple sap.

SACBROOD AN OLD BROOD DISEASE UNDER A NEW NAME.

FOR many years back there has been recognized a form of dead brood under the name of pickled brood that is neither European nor American foul brood. It comes and goes at certain seasons, but is never a destructive agent like either one of the old foul-brood diseases. Sometimes it has the appearance of foul brood so far as color is concerned; but it is never rosy like the American type; and while similar to the European type it seldom gets very much headway in a colony. For some years back, Dr. G. F. White, Expert in Bacteriology in the Bureau of Entomology, under Dr. E. F. Phillips, has been studying this peculiar disease; and the result of his investigations as given in Circular No. 169, Bureau of Entomology, show that it is not a fungous disease, as was supposed by Dr. Wm. O. Howard, of Texas, but is due to some other cause. It will be remembered that Dr. Howard attributed the cause to a fungus, to which he gave the name *Aspergillus pollini*. He then suggested the name "pickled brood," which was adopted.

It is mildly contagious, and the infected larvæ turn yellow and then brown. Sometimes the color is gray. The dead specimens may be in unsealed cells, but are generally in the sealed ones. The dead larvæ, says Dr. White, are "almost always extended lengthwise in the cells, and lying with the dorsal side against the lower wall. . . . The form of the larvæ dead of this disease changes much less than it does in

foul brood. The body wall is not easily broken, as a rule, and on this account often the entire larva can be removed from the cell intact." . . . "When removed they have the appearance of a small closed sac. This suggests the name of sacbrood."

The only objection we find to the name is that it may be often confused with black brood, which is still very largely used, especially by those in possession of the older literature on bee diseases. In ordinary discussions in convention the word sacbrood can be very easily confused with black brood; and our own stenographers have repeatedly in our letter-writing confused the terms and substituted the wrong one.* However, this is a matter that will correct itself as time goes on.

CAUSE OF SACBROOD.

So far no microbe or fungus has been discovered as the cause of the disease. Whatever it is, it is so very small that it will pass through a Berkfield filter. Sick and dead larvæ of sacbrood have been macerated and diluted with sterile water. The product was then passed through a Berkfield filter; but it was found that the filtrate would transmit the disease to a healthy colony. Colonies fed with this filtrate would again give the disease to other colonies. It is evident that the disease is contagious. Dr. White concludes "that sacbrood is an infectious disease of the brood of bees caused by an infecting agent that is so small or of such a nature that it will pass through the pores of a Berkfield filter."

This led us to the conclusion that the foul-brood inspectors of the country might be compelled to quarantine an apiary where sacbrood might be found; but in talking with Dr. E. F. Phillips, of the Bureau, afterward, he said he did not think that this would be necessary. The disease at its worst is not very destructive; and when it does make its appearance it affects so few larvæ in a colony that it need cause no great alarm on the part of the beekeeper. While he would advise treating or isolating colonies, he did not believe it would be necessary to quarantine an apiary where it was found.

We are informed that this circular will be followed by a bulletin in which the disease will be treated more fully. Copies of this circular can be obtained by applying to the Superintendent of Documents, Government Printing-office, Washington, D. C., and inclosing five cents per copy. Ask for Circular 169, Bureau of Entomology.

* Indeed, our oldest stenographer got the names wrong in taking down this very editorial. The ear scarcely catches the difference.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

I LIKE that March 1 number. Seems more homelike with so many women-folk around.

THE man with an out-apiary has the special advantage that he can take a colony from one apiary to the other and break it up into several nuclei without any precautionary measures to make the nuclei stay where they are put. [Right you are.—Ed.]

WOMENFOLK do all the work in the hive, while the male members are dead-beats. That would make it seem the appropriate thing that beekeepers should be women; whereas they're nearly all men. Is this another of the cases in which women have been denied their rights all these years?

A CITY daily advises boiling three pounds of sugar syrup with one of honey, and says a great many people like it better than honey "because of the absence of honeycomb, which is dissolved." Now, there's a hint for the United States government, which is having a lot of trouble trying to dissolve certain trusts. Just boil the trusts in three parts sugar and one part honey, and they will be "dissolved."

"UNDER the Colorado rules, the sections must not weigh more than a certain minimum nor more than a certain maximum," p. 140. I suspect you mean *less* than a certain minimum, but where do you get any thing about a maximum? [Yes, certainly, we accept your correction. Where do we get maximum? From the Colorado rules. *Later*. Just looked it up. There is no maximum. The joke is on us.—Ed.]

THE women of several of the large cities took in hand the egg-market, with the result that eggs were bought at 24 cents a dozen by people too poor to pay the previous high prices. Now Chicago women have hammered down the price of apples from 6 cents to 2½ cents a pound. When they get around to it, it would be a glorious thing if they would hammer down the price of honey so that ill-nourished little kids who never taste honey might get an occasional meal of it. "That would lower the price to the beekeeper?" Not a bit of it. It would, if any thing, work the other way by increasing the consumption. The farmers didn't get any less for their eggs and apples because the women butted in. Even if it should bring the beekeeper less, the honeyless kids outnumber the beekeepers.

I'M glad to see that Byer-Root scrap started about feeding honey or sugar syrup, pp. 138 and 141. I hope it will be fought

out to a finish, and that, when the finish comes, we'll know more than we do now. But when you're talking about syrup, are you both talking about syrup of the same strength? and do you mean one part sugar to one part water, or 2½ parts sugar to one part water? That's right—make that Kanuck show the proof for what he "knows." It's none of my funeral, but I'm here to remark in a cautious way that I suspect that a pound of good honey is worth more for bee food than a pound of the best sugar in the world. [Do you mean for brood-rearing or wintering? You do not say. If for the former, we would agree with you; but if for the latter, we should have considerable doubt. In talking about the relative values of food for bees, we must not fail to specify the conditions.—Ed.]

ELIAS FOX, you think the pain is just as great when the sting is promptly removed as when the sting is left in the wound, p. 116. You're right that a sting between the shoulders is something fierce; but might it not be still worse if *not* removed? When the sting is left, does not the poison-sac remain with it, and does not the poison continue to be pumped in for some time? You ask if any one was ever stung by a queen. I never was; but just once in my life I saw a queen sting a worker. [Our experience is that a sting is much more severe if left in the wound than if removed immediately. In the case of a novice or a person who is not accustomed to the effect of the bee-sting poison, the swelling and local fever are, we should say, ten or twenty times more severe. A few years ago, we received what proved to be nearly a "knock-out blow." A bee stung us on the eyelid, under our glasses. The eyes were so suffused with tears that it was impossible to get the sting out. Although there was no swelling, we never received a sting that was more painful. We have been stung many and many a time on the eyelids, without very much discomfort where the sting was removed immediately. As Dr. Miller says, when the whole contents of the poison-sac are allowed to get into the wound, the effect is in proportion to the amount of poison that gets into that wound. The yellowjacket or hornet, if we are correct, does not leave its sting in the wound, and this sting is a mere prick; but the sting from the bee is, in most cases, left in its victim, and so the sting keeps on doing its work, even though the bee itself is smashed.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

We are still greatly interested in the cheap shipping of bees without combs, and expect great things are yet to come out of it.

* * *

One of the best things I have ever seen on the subject of feeding back extracted honey in order to secure comb honey is furnished by friend Doolittle on page 44, Jan. 15. It is all there, and all right.

* * *

Those Germans do some original thinking or they would not be supplying their soldiers with tubes of honey while on the march. If it is good for German soldiers it is good for most people engaged in hard or laborious pursuits.

* * *

I read with pleasure of Mr. Chadwick's efforts, at the California State convention of beekeepers, to learn whether alfalfa produces honey of different colors, p. 48. I formerly thought there could be no difference; but after having white-sage honey offered us of a decidedly amber color, and with scarcely a trace of sage flower, and alfalfa that was dark in color and of doubtful flavor, I concluded that "locality" must play a part in the production of honey, of which I had no conception.

* * *

Mr. A. B. Marchant, Jan. 15, p. 45, gives some facts of immense importance to the beekeeping fraternity about the value of pollen in building up weak colonies. We of the North, where pollen is so abundant, have been accustomed to think of honey as a most important item in stimulating bees to rear brood. But it seems that the bringing in of pollen is quite as important. In the North we used to feed rye meal or buckwheat, sometimes in early spring, and we know bees will take it with great eagerness. I wonder if any one has ever tried it in localities where pollen is scarce, and yet the supply of honey is abundant.

* * *

Friend Doolittle, will you please sit up and take notice, for I have somewhat to say to you? In GLEANINGS for Dec. 1, p. 759, you appear to be laboring under so many misapprehensions and misunderstandings that your statements would appear to be very misleading. In a former number of GLEANINGS you took up the subject of finding black queens during a time when robbers are bad. In GLEANINGS for Dec. 1 you say, "After reading this, Mr. Crane wrote,

page 615, Oct. 15, 1911, 'Hello, friend Doolittle! I want to know if you can do that for an hour, when no honey is coming in, without music about your ears in the key of seven sharps.' Yet we have here been finding them this season for many days, sorting out the old or defective ones with great rapidity. We use a queen-sieve, and are not troubled by robbing." You say that the first thing to attract your attention in reading this was that "friend Crane would have the readers of GLEANINGS think that he uses only black and hybrid queens." Beg your pardon, not at all. I would have the readers of GLEANINGS think that, when I have mismated queens or black queens, as we sometimes do after buying in a new yard, we would sort them out as we have time or opportunity, and replace with pure young queens.

Again you say, "The next thing to take my attention was that the editor of one of the departments in GLEANINGS should put off hunting out 'his old and defective' queens until a time of scarcity of nectar had arrived in the fall." Will you please put on your spectacles, my good friend, and read just what I did say? You will see that I said, "We have been finding them *this season* for many days." Nothing was said about the fall. The season of scarcity during 1911 was pretty much all summer. But, again, you say, "But to allow the beginner to believe that a time of scarcity is the best time to supersede old poor failing queens is something hardly admissible in the columns of a paper like GLEANINGS." If you will adjust your glasses once more and read what I said, you will, I think, see that I said absolutely nothing about the best time to supersede old or worthless queens. I referred, as you did, to a time when bees are inclined to rob.

In the fourth paragraph of your department you try to prove that *black* queens can be looked up in a season of scarcity of nectar without danger of stings or robbing if they have been properly handled and managed, by saying that you often work from 10 A. M. to 2 P. M. without robbers or stings at such times, and yet you have already told us that you have no black bees.

In writing as I did I simply desired to call attention to a very simple and effective device that I had found very useful in finding queens when colonies were strong and nectar scarce. In the spring, while colonies are not very strong, it may not be of as much service.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

A rosy hue has begun to make its appearance on the prospects of the season, for just now we are enjoying an old-fashioned "wet spell that makes the heart of the California beekeeper glad. Four and one-half inches for the past 24 hours (Feb. 24) is the report from Los Angeles, though at this place we got but half an inch. The sage seems to be damaged in the interior foothill region much worse than nearer the coast; in fact, Mr. M. H. Mendleson, of Ventura, tells me it is not injured in that vicinity. The prospect for orange bloom is fine at this time, as the buds are starting in almost the usual quantity.

* * *

I am in receipt of a section of comb honey by parcel post from Paul Hunter, of Somerset, Col. The tin section, with its neat covers, makes a handsome and durable holder that stood the trip through the mails, arriving in perfect condition. I am of the opinion, however, that the package is too expensive for common use, and will not displace the wooden ones very fast. Mr. Hunter has demonstrated to my entire satisfaction that these packages will stand the knocks received in the mails, yet the postage on the one section was 16 cts., which would make the delivery by parcel post prohibitive, at least beyond the first zone.

* * *

A meeting of the executive committee of the C. S. B. A. was called at Los Angeles on the 12th of February. Final action was taken on the matter of publishing an association journal. It is to be about the size of the *Beekeepers' Review*, to be issued monthly, and its name will be *The Western Honeybee*. Mr. Geo. L. Emerson, of Los Angeles, is the editor. The committee on marketing, which is composed of the presidents of affiliated clubs, elected Mr. T. O. Andrews, of Corona, chairman, and Mr. C. Hauser, of Sacramento, secretary. The matter of establishing retail markets was left for future action. The purchasing of cans and cases was under consideration, but no definite action was taken, though plans were given out that indicate the association will be able to get cans at a good reduction, and cases in the flat by the carload at a very low figure, making the combined cost a substantial reduction over last year's prices.

* * *

Mr. Editor, I read "Subscriber's" article on p. 59, Jan. 15, and was beginning to get

rather warm until I saw your comment at the end. That soothed me somewhat, but I want to come to the defense of our beekeepers with a few more remarks. "Subscriber" seems to be sore at the entire beekeeping fraternity of this State, and all because of the treatment from one man. He received \$30.00 per month with no experience, which is farm wages, and the green hand is dear at that price in the bee business. The average bee-ranch is not within reach of butcher-shops, and he is lucky to get fresh meat at all. He was *very* lucky in not having to do his own cooking and to clean up his own dirt. The average native would rather sleep out of doors than in, and blankets are considered all that is necessary. I have slept that way many a night, and have enjoyed it. The California beekeeper, on the average, is no worse than any other class of men anywhere else.

* * *

I want to harp a little more on the matter of our exhibit at the Panama Pacific Exposition. As I am secretary of the exhibit committee, much of the work of getting the means together, with which we expect to make the finest exhibit of the kind the world has even seen, will fall on me. I want to say at the beginning that this is not to be in any sense an association affair, but an exhibit of the beekeepers of the State of California. The State Association has taken the matter up to push it through, as it is necessary to have an organization to work through, and to whom those handling the funds are responsible. The plans the exhibit committee have under consideration are of immense proportions and will require much honey, wax, and money. We must have liberal support to be able to complete the plans we have under consideration. Every beekeeper in the State will confer a favor on the exhibit committee if he will notify me at the earliest possible time just what quantity of honey they are willing to donate, let it be any number of cases; or if it is preferable for some to give cash we want to know the amount we can figure on for the work. There are expenses to be met almost immediately in order to get the details worked on time and the work started.

Every beekeeper can also donate some wax, and of this we shall need all we can get. If you are a member of an affiliated club, give your pledge to the secretary of your club. Others who will help, please write direct to me. Get busy, boys. We *must* make a success of this.

Conversations with Doolittle

At Borodino, New York.

MAKING THE BEST OF A SHORT HONEY-FLOW.

"In our locality the honey season is very short, and I wish to know of some plan by which I can get into the supers the most of the honey which comes in during the week or ten days of the honey-flow, without wasting any of it in brood-rearing."

"It will be necessary for you to have plenty of stores for feed during the spring months, so that brood-rearing can go on rapidly, that the combs may be well filled with brood, and the hive well filled with bees when your short flow commences."

"An old beekeeper advised me to make a syrup to feed the bees by mixing sugar and water in equal proportions for feed, so that the combs might be filled with this syrup at the beginning of the harvest, except that part filled with brood. In this way, he said, when nectar comes in from the fields it would have to go into the sections, as there would be no other place for it to be stored."

"Did he think that would be better than to have an abundance of honey stores in the combs?"

"He seemed to think so, for he said it was advisable to feed all the colonies, as those that already had enough food would be stimulated by the feeding, and, as a consequence, would commence raising a lot more brood than they otherwise would. This would mean a host of young bees at the right time; which in turn would mean a big crop of honey from my short bloom. He said that many of the beekeepers of the United States who lived in localities like mine could just as well be getting quite a surplus, and no little money from it, as to be going along on the old plans of securing little or no surplus with nothing but bees for winter. And, often, such a locality would have a downpour of honey, in which case the hives, if filled with capped sugar stores, and just fairly boiling over with bees, would have no room for the big flow except in the supers where it is wanted."

"Well, that sounds well. But did he say any thing about the cost and labor necessary for such a procedure?"

"That was a point I brought up; but he met it with the fact that farmers think nothing of feeding their stock, except to get returns. He claimed that the one who would say he could not afford to feed his cows well because of the cost of the hay and grain that he would feed them would be considered a fool indeed."

"Suppose, however, that you can secure the same result by carrying over combs of

honey from the previous year, what is the object in buying sugar and feeders, and going through with all of this multitudinous labor of feeding every day for six or eight weeks?"

"I hinted at this; but he said that the one who depended upon the bees having enough stores to carry them through to the honey harvest properly, generally found that their *enough* proved so little that the bees would scrimp and economize, so that their stores might be made to last. In this way, he argued, brood-rearing would be cut down; and when the season opened, the hives would have few bees, but little brood, and plenty of empty comb in which to store the first honey which came in from the fields."

"Well, I have to confess that your man, whoever he was, was a good talker; and if it were not true that there are some obstacles in the way of carrying out this plan he would have an argument that it would be hard for any of us to get around. One is the fact that only as you have the most prolific queens will the brood-rearing be kept up at the maximum where every-day feeding is resorted to for weeks in sufficient quantities to stimulate brood-rearing. With nine colonies out of ten, the bees would begin to crowd down the queen by storing too much of the feed, in which case there would be few bees in the hive and very little brood. The sealed honey above and about the brood would be so great that the average strain of bees would not cross over this vast amount of honey to store in the sections even the little which the bees would gather; and the result would be that, instead of a big crop of honey, that coming in from the fields would be still further used to crowd out the brood. When winter arrived, the cluster of bees would be too small to survive, especially if the colony were wintered out of doors."

"Then, too, if everything worked as you were told, and lots of bees were obtained to take advantage of the sections as soon as the flow of nectar commenced, these combs of sugar syrup would soon largely give place to combs filled with brood, as both queen and bees are more largely stimulated with nectar coming from the fields than they are with sugar syrup coming from a feeder. In this way queens which are good enough to keep up the maximum amount of brood under feeding sugar syrup would make a gain as soon as the nectar began to come in from the fields, and the sugar syrup

Continued on page 176.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

"BULK COMB HONEY" OR "CHUNK HONEY;"
WHICH AND WHY?

Our reason for insisting on the name of "bulk comb honey" for the product as put on the market, here in Texas principally, is to distinguish it from section comb honey on the one hand and old-fashioned "chunk honey" on the other. It can no more be put in the place that chunk honey used to occupy than extracted can be put in the place of the old-fashioned "strained honey."

It is hoped that these various names will soon be understood by the beekeepers of the world. It is of no use to criticise "bulk comb honey" nor the use of the name itself. The two have become so well established, and this kind of honey is produced in Texas to such an extent, that it will be impossible to blot it out. The demand for this kind of honey, for "bulk comb honey," and not "chunk" honey, is so great and so firmly established that this alone will maintain a place in our Texas beekeeping, to be filled by those who will produce it if others will not.

There should not be any objection to the Texans claiming "bulk comb honey" as originating in Texas and being a Texas product. It is too well known that we Texans were the first to resort to the *up-to-date method of producing and putting on the market this kind of honey known as bulk comb honey*; and the mere fact that almost the entire Texas crop is in this form, and especially since the Lone Star State produces no little crop is justification enough to permit it to claim credit for being the home of bulk comb honey. It is simply different from "chunk honey" of long ago.

* * *

WORK FOR MARCH.

It is a splendid idea to have every thing in and about the apiaries, and also in the workshop and honey-house, nice and clean, or "in apple-pie order." This makes a much better appearance in the first place, and helps to make the season's work much more pleasant and agreeable. With the yard cleaned of rubbish, and the trees trimmed to a proper height, the usual obstructions are out of the way, and save a good deal of vexation. A whole lot more work can be done. Especially is this true if every thing is in its place, in the workshop as well as in the other places where the beekeeper has to do his work.

Of great importance is the matter of "spring cleaning" the interior of every

hive of bees. Scraping off the burr-combs, propolis, and fixing up and repairing hives, supers, frames, bottoms, and covers, as well as any broken or misshaped combs, should be done early in the spring. This makes all future manipulation very much easier and more rapid. It seems, also, that the bees of colonies treated in this manner will do better. Since the combs are manipulated as they are being scraped, as we take each one out of the hive, it stirs up the activity of the bees—especially so if much sealed honey is bruised.

It is necessary, of course, that all this work in the hives be done when we have warm weather. It is also necessary to replace the combs as they were taken from the hives, or put them back in such order that the brood-nest will not be disturbed too much.

During the "spring cleaning" we have the best opportunity to remove all unnecessary drone combs and any other combs that are not in first-class condition. It is far better to melt these into wax, and exchange for full sheets of foundation in every frame replaced. It is good practice to "patch up" worker combs after the drone comb is cast out of them, by replacing this with worker comb from other frames. The time required to look after the combs each spring pays well, and should not be overlooked. It is very unprofitable to rear drones in any numbers, and just as much so if we allow crooked or ill-shaped combs in our hives. Every square inch of worker comb put in place of the other will mean just that much more profit to the beekeeper.

All the needed supplies should have been prepared during the winter; and if not already done, foundation should be placed in the first rounds of the supers early enough so that this may not interfere with other work coming on a little later. I do not advocate putting foundation in all supers very far ahead of the time when they will be actually used, since the foundation becomes quite hard, and will not be accepted by the bees quite so readily. I have found that they prefer the fresher foundation.

Continued from page 175.

would be removed to give place to this brood, going into the sections with the nectar from the fields. As a result we should be liable to come in contact with the pure-food law which we beekeepers have been praising since it was enacted."

General Correspondence

RIPENING HONEY ARTIFICIALLY

The Great Majority of Authorities Advise Against the Practice

BY OREL L. HERSHISER

This subject has come in for a good deal of discussion ever since the introduction of the honey-extractor, the latest contribution being that of Mr. I. Hopkins, page 801, Dec. 15, 1912. Advocates of extracting unripe honey practice this for the twofold reason of greater quantity with less labor. The time otherwise spent in uncapping is saved, and the honey is thrown out more quickly and thoroughly because of its thin and watery condition. But the honey thus produced did not and does not meet with favor from the American customer. Some years ago prices of extracted honey became depressed to a point of little or no profit to the producer of the better grades, and there is no doubt that the production of so much unripe honey had more to do with that condition than all else. The writer knows something about it, as he lost a good 2000-pounds-a-year customer by supplying a thousand pounds of fine-looking and apparently ripe basswood honey purchased from another beekeeper, but which, evidently, had been extracted before it was all capped, as it fermented and outgrew the capacity of the pails. What appeared to be the source of profit to the uncapped-honey producers—greater quantity—proved to be the cause of loss, for there could be no profit in quantity when it was more than neutralized by diminution in price. That unripe honey has had and will ever have a depressing effect on the market; and that unprincipled dealers have used and will ever use it as a club to hammer down the price of high-grade honey ripened on the hive can not be successfully denied. For what distributor of honey that has been ripened on the hive, whether apiarist or dealer, has not been adversely affected by unfair competition with unripe honey? If the principle of "greatest profit for the labor" had been strictly adhered to, instead of "greatest quantity for labor," I believe we should all now be getting better prices and profits from our apicultural investments.

Mr. Hopkins observes, "We all know how strongly the ripening of honey anywhere but within the hive has been opposed at different times," and it is within the facts to add that that opposition is growing stronger and sharper from year to year.

Mr. Hopkins cites several prominent authorities in support of his contention in favor of ripening honey outside the hive. Of these, our beloved Quinby died in 1875, and the honey-extractor was not invented until 1868, and probably did not come into even limited use for a year or two later. With that profound reverence that every American beekeeper who is familiar with the fountain heads of his occupation feels for Moses Quinby it does not seem that he could have so attained to that ripeness of experience on this point as to make him a leading authority. It is idle to speculate as to what might have been his ultimate opinion on this point had he lived to mature experience; but it is proper to say that some of the early advocates of the ripening outside the hive later changed their minds.

Mr. L. C. Root has not been extensively engaged in apiculture for about 25 years, but he retains his interest in the subject and in beekeepers. He was present at the convention of the National Beekeepers' Association, Albany, 1910, and entered heartily into the discussion of many subjects. A very able paper from Mr. W. P. Southworth, of Salix Falls, Iowa, on the subject of "Ripening Honey on the Hives," was read at the convention. Mr. Southworth is the manager of an association of beekeepers called "The Western Honey-producers," an association whose annual output reaches 200,000 pounds. He pointed out that ripening honey on the hive is the best method of producing honey that would "taste like more;" that it is not enough that honey be entirely sealed in the comb to be ripe and ready for market, but that it should age on the hive; that the extracting process causes the honey to take in the ferment germs that attack the particles that are not thoroughly inverted or changed from nectar to honey; that he had read the articles written by E. W. Alexander and others on extracting, often during the season, and their methods of artificial ripening, and that he had considered what constituted honey, and would refer to the bulletin published by the Agricultural Department at Washington, D. C., entitled "The Chemical Analysis and Composition of Honey;" that he admired E. W. Alexander, and had studied his writings, and found his methods suitable, with one exception, and that was his method of extracting the nectar from the combs before it was sealed or even well evaporated; that in his location (Iowa), and with the equipment that the average and even extensive beekeeper has, he believes the plan is worse

than a failure; it is a damage to the honey market; that no honey-producer should attempt it unless he wants to enter quite extensively into the manufacture of honey vinegar, and doubts if the nectar would make as good vinegar as ripe honey would; that the all-important question to the consumer is, the flavor of the honey he is eating; and if we want him to eat more honey we must give him the thick delicious honey with the bouquet of the flowers in it; and we can not get this from nectar, nor can man ripen the nectar so that it will be equal to the honey that the bees have finished.

Mr. Southworth's views were sustained in the discussion that followed the reading of the paper, and neither Mr. L. C. Root nor any other member spoke in favor of ripening honey outside the hive.

At the Harrisburg convention of the National Beekeepers' Association, 1907, there was a question by H. Ballou, "Can you get more honey per colony by frequent extracting of the combs during a honey-flow than by tiering up supers with full combs?"

Answered by E. W. Alexander: "Yes, I think we can get nearly twice the amount; but you will require some large tanks for ripening it thoroughly before it is barreled. We make it a point to extract just when the bees commence to cap it. We seldom have any surplus except buckwheat and goldenrod, and occasionally some basswood. We find it a great improvement on the honey from these flowers to keep it in the tanks about two weeks so it will lose a part of the strong odor and unpleasant flavor it has when first extracted. It gives much better satisfaction, and sells far more readily, than if it were barreled up as soon as extracted. I know that any honey that has a strong disagreeable odor and taste is much improved by being exposed to the air a short time."

In the further discussion of this question the writer expressed admiration for nearly all of Mr. Alexander's doctrines; but as to this one of teaching the advisability of extracting honey before it is capped he entered a protest. He pointed out that it might be all right for Mr. Alexander, but that he was answering a question that goes to the beekeeping world; that if we teach beekeepers that honey can be extracted and ripened afterward we shall have about nine-tenths of them not ripening it afterward. The gain in quantity would not be sufficient to compensate for the loss in quality. The writer stated that he himself was interested in producing honey that was as good as the bees could make it.

The president, Mr. Aspinwall, seemed to have a little preference in favor of ripening outside the hive, especially for so skillful a beekeeper as Mr. Alexander, expressing the belief that the gain in quantity was greater than the loss, but said it was right to "warn people against promiscuously doing that sort of thing." Upon inquiry by the President, if there were any artificial processes given in the A B C and X Y Z of Bee Culture, Mr. E. R. Root answered, "These are all out." It may be remarked here that this answer is very significant as showing that it is considered unwise to teach or in any way encourage the ripening of honey outside the hive.

Mr. Selser, a very extensive producer and distributor of honey, and a widely known expert analyst and judge of honeys, having performed extensive and numerous services for the United States government, in that line, said, "I should like to have it go out from this convention before the United States that we do wrong in evaporating honey in tanks instead of letting the bees do it in the ordinary and natural way."

Mr. Holtermann, one of Canada's larger producers and best authorities, expressed admiration for many of Mr. Alexander's writings, but thought him entirely wrong upon this question of taking out honey in the condition in which he speaks of; that *he* can't do it, and manage the way he says he does; for a man who has a stock of bees with the large worker force he speaks of, and has one extracting-super on the hive, can't extract before the honey is capped, and have that honey all in the condition where it is just ready to seal. In a good buckwheat flow we all know that a stock like that can, in one week's time, fill a twelve-frame super. Mr. Holtermann considered Mr. Alexander's mistake in using only one extracting-super. If he would use two or three he would not be able to say that he could get nearly twice the amount of honey by extracting before it is capped.

Finally it was moved by the writer "that it is the sense of this convention that the throwing of unripe honey upon the market, or taking off honey before it is capped—in other words, curing it artificially—is a detriment to the beekeepers of this country." This motion was duly seconded and carried. Of course, it is understood that, at the sudden termination of a honey-flow, there will necessarily be considerable uncapped honey in the supers where an abundance of room is given, and that this will ripen in the natural course, even though not capped; but somehow it seems to lack a little in attaining to that perfect flavor to

be found in honey entirely finished and sealed by the bees.

Also quoting from the paper by Dr. E. F. Phillips, on "The Care of Extraeted Honey," read at the Harrisburg convention, "It is the policy of most beekeepers to allow this ripening to take place in the hive by waiting until the honey is almost all or entirely capped, and this is *undoubtedly the preferable method*. It is a matter of common observation that honey which remains in the hive for a long time has a *better "body,"* and has *more of the characteristic honey aroma*. By ripening in the hive, honey gets its *characteristic flavor to a greater extent than is possible in evaporation outside the hive*. The thorough ripening of honey can not be too strongly recommended. *Honey attracts moisture*, and there is always a tendency for a very thin layer to form on top of the honey in which the water content is very high. In such a film the amount of sugar is low; the acetic-acid-forming bacteria can grow rapidly, and the honey becomes *sour*. In thoroughly ripened honey it is very probable that a film of thinner honey is always present; but in such a case the sugar content is so high that the bacteria *can not grow*" (italics all mine).

Thus it is shown that, for very weighty reasons, many of the foremost beekeepers and distributors of honey in the United States and Canada are unalterably opposed to any method of ripening honey outside the hive; and that, when there was an opportunity to advocate or defend such method, as at the conventions before mentioned, Mr. Alexander was the only open advocate, and he received no support except the slightly favorable remarks by the president, Mr. Aspinwall.

Mr. Hopkins has shown, from the report of Dr. Phillips upon samples of his honey submitted, that it was of superior quality in reference to water content and inversion; but it is noticeable that the doctor is silent on the points of flavor and aroma, which are all-important in making up the value of honey. Take away the element of flavor from honey, and there would be no occupation of apiculture. And if honey ripened outside the hive is so skillfully treated as to make it come well within the legal chemical standard as to water content and inversion, and has a *good flavor*, be assured that, if the same honey had been ripened within the hive by the bees in the natural way, it would have had the *best flavor*.

With his process, requiring special attention to ventilation and the use of artificial heat, the use of the thermometer and

hydrometer, the repeated testings of honey at the top and bottom of the tank, and the mixing, Mr. Hopkins is undoubtedly able to get the best there is out of ripening honey outside the hive; but "how many Hopkins are there?"

The process of securing ripe honey in the natural way is extremely simple. Just leave it on the hive, with the bees, until after the close of the flow, or until perfectly capped; then remove, uncapped, extract, strain into tank, allow time for foreign particles to collect on the surface of the honey, and then draw off the sparkling liquid into suitable containers.

If all honey were allowed to ripen in the hives by the bees, unripe and ruined honey on our markets would be a curiosity; but as long as man assumes this undertaking, wherein, for him, perfection is impossible, there will be many fold more failures than doubtful or partial successes, and the highest attainments in the science of apiculture will not be reached. The beekeeper is wise if he goes not out of his way in resorting to extra care and equipment, to secure honey that necessarily falls short of perfection, and more often proves to be a failure when the best is so easily obtained.

It is no reflection on man to say that the bee knows the most about making honey; for the Creator has endowed her with a superior and inimitable process of ripening it and preserving its flavor, and has withheld this art from man. But in his wisdom he has given us dominion over the bee, and thus it is ours to have perfectly ripened and flavored honey if we will.

Kenmore, N. Y., Jan. 6.

[Our correspondent has done well in gathering together the bibliography against ripening honey artificially. As a matter of fact, we could gather enough more statements, made at different times against the practice, that would fill up one or more journals. The trend of opinion on the part of experts, both producers and honey-buyers, is emphatically against it. In saying this we do not mean to imply that uncapped honey is necessarily unripe. The usual rule is to extract when two-thirds of the cells are capped over. The remaining third of the cells, uncapped, contain honey that is nearly if not quite ripe, and only awaiting the action of the bees to seal it up.

In this connection we may state further that Mr. E. W. Alexander was one of the most valued correspondents we ever had. Perhaps no one writer we ever had has been quoted more than he; and yet, after he had put out the doctrine of extracting before the combs were sealed and ripening in open

tanks, we are frank to say we were condemned by beekeepers and buyers everywhere for letting the doctrine appear in our columns *without a protest*; and Mr. Alexander himself once told us that because of this he had more mad bees (beekeepers) buzzing about his head than he had ever had before.

After saying all this, we believe it is, nevertheless, a fact that in most of the extracting of a whole yard, some combs will be only half sealed and some only a third, yet all are put through the extractor. A few combs out of the whole lot will do no particular harm, even if not ripe.

In favor of Mr. Hopkins, we may say he is one of the best beekeepers in the southern hemisphere. As a man and as a producer he stands high. But his own countrymen, judging from the letters we have received, are opposed to the doctrine of extracting before the combs are sealed, although they may admit that he is probably expert enough to do the work. But we are firm in the belief that any artificially ripened honey, while it may be thoroughly inverted from the standpoint of the chemist, will lack some of the beautiful richness and flavor that is so much prized in honey that has been allowed to ripen on the hives.—Ed.]

QUEENLESS COLONIES GATHER POLLEN BEFORE BECOMING QUEENLESS

BY R. O. MARTIN

On page 797, Dec. 15, Mr. Holtermann says, "The evidence of a queenless-colony condition last fall will be pollen-clogged combs, indicating that the bees gathered pollen, and did not have larvæ to feed the pollen to, and it had, therefore, accumulated in the combs. I find no exception to this. Does this, then, not prove conclusively that queenless colonies do gather pollen?"

The evidence of no larvæ to feed is good; but I do not take much stock in this as an argument to prove that queenless colonies gather pollen. My queenless colonies have not only the pollen, but plenty of honey too, for that matter. Does that prove that queenless bees gather honey and pollen? Certainly not, because *the bees had gathered all or nearly all of this pollen and honey before they lost their queen.*

Did you ever examine a colony that had just lost a queen, and did you not find the combs full of honey and pollen? I am speaking of a colony that has lost a virgin queen on her mating-trip, when nearly every cell of brood had hatched. If the young

queen had made her flight safely, wouldn't the bees have hustled to get that honey and pollen out of her way?

Did you ever see a queen come out of the hive to mate, and watch for her return, she being lost? Have you, then, noted the colony's actions as the bees run out and in, up and down, and almost all over the hive? Have you watched them the next day, and the next, etc.? They are always looking for their queen. They come out on the alighting-board, hesitate a while, fly away in a half-hearted way, and this at a time of the year when the bees are not robbing. Occasionally you will see one with a small amount of pollen; but look at the hive that has a young queen just beginning to lay. See how they run out on the board, and away they go. Do you see any difference in the two colonies? It is easy to distinguish between them, for the bees of one are all hustle and the others seem very lazy. The bees with the queen bring great loads of pollen; but the queenless bees scarcely ever have a load—not enough to clog the combs in a year at that rate.

When the robbers are active it is harder to tell the queenless colony. There is a difference even then, however, for the robbers will hang around the queenless colony more than they will around a colony with a queen. That is the way bees act in this locality.

Naylor, Mo., Jan. 5.

Making Increase Before or After the Main Honey-Flow

Being a subscriber to GLEANINGS I come to you for advice. I had considerable experience with bees in Illinois some 25 years ago; but all conditions here are so entirely different I feel like a beginner. Spring will begin here about Feb. 1; and by the last, bees will be actively at work much of the time. From the middle of March to late in April we get most of our natural swarms with a few any time till late fall—usually a short honey-flow in April from fruit, mostly peaches; then they just about get their living till July 5, when there will be a fair harvest with a steady yield for three months or more. Now, under these conditions please tell me what is the best method to manage so as to secure all the increase possible, and still have all, both old and new, in first-class order for fall harvest.

Winton, Cal., Jan. 23.

L. T. AYRES.

[The conditions here described are ideal for making increase and securing a honey crop, and we believe you can make such increase before the main crop comes on.

As to the method of increase, the one we would recommend to you is given in the A B C and X Y Z of Bee Culture, under the head of "Increase," or what is known as the Alexander plan. We have had very many favorable reports regarding this, and we believe that you will secure better results with less loss of brood than with any other one that you can adopt. For further information you are referred to the subject of "Nuclei," found in its alphabetical order in the same work.—Ed.]

NATURAL SHELTER VS. ARTIFICIAL WIND-BREAKS

BY J. L. BYER

On page 775, Dec. 1, 1912, Mr. Holtermann has an article entitled "Fences for Winter Protection;" and as this is a subject on which I disagree with my friend, naturally the said article was read with more than usual interest. Right here let me say that, while we generally agree on all matters apicultural, yet when such a condition is not possible we can always "agree to disagree" with one another, and that is all there is to it. On this subject of winter protection my experience has been so very much in favor of natural windbreaks, such as hedges, trees, etc., as compared with a bare board fence, that I actually wonder at the claims made for the latter. While the fence may more effectually stop the wind, yet with me the best results have always been obtained from a shelter that breaks the force of the wind and yet allows it to pass gently through the yard. Having just purchased a camera, and being eager for a little practice, I have taken pictures of four of my yards wintering outdoors, and I will briefly explain how the shelter in each yard seems to have worked out in actual practice over a term of seven or eight years.

Fig. 1 shows part of the Markham apiary, which is sheltered on the north, west, and east by apple trees, small fruit, shrubs, etc., with buildings on the north. The house is about 80 feet north of the yard. Here we have always had first-class wintering with the exception of one season when a lot of honey-dew was in the hives. In addition to wintering

well, the bees in this yard always "spring" well too; and the colonies are always boiling over with bees early in fruit bloom.

Fig. 2 shows a small corner of the Cashel apiary. This yard is sheltered on the north by a lot of high evergreens; on the east and west sides by an apple orchard, while the south is protected by buildings. Like the yard already described, the bees here invariably winter in perfect condition, and, with the exception of the year when honey-dew was so plentiful, a colony is rarely missing in the spring. This apiary has 105 colonies, and has had 80 or over for the past six years, with always the same kind of wintering.

Fig. 3 shows a corner of the home yard where, as will be noted, is the board-fence protection advocated by friend Holtermann. Colonies in this yard never winter as well



Mammy and the bees.—*Photograph from M. C. Long, Kansas City, Mo.*



FIG. 2.—Corner of J. L. Byer's "Cashel" apiary.

as in the two just described. The early spring is the time when the fence works havoc, as often on sunny days with a cold wind the bees will fly north and drop by the thousand on the ground (there is often snow there when it is all gone in the yard); and as the sun does not reach them there, they perish in great numbers. This yard is about the only one that I have any spring dwindling in; and the peculiar location is, in my mind, partly responsible for this condition. I have thought of removing the fence altogether; but as I use quilts, a wind-break is a great convenience, as all will testify who have tried to work with the bees in the open, when quilts were over the hives, and a high wind blowing.

Fig. 4 shows the Lovering apiary, 100 miles north of my home; but as this yard was established last summer I can not say how the location will prove in the matter of protection. However, in my opinion the protection afforded is just about perfect. All summer, although the covers were loose on top of the hives, not a single one blew



FIG. 1.—Part of J. L. Byer's "Markham" apiary.

off. North of the yard the rocks gradually rise to quite an elevation, while on all other sides the forest protects the yard. The yard is right out in the forest—in fact, in a nice bit of clearing, making an ideal location, while the trees are not near enough to give too much shade at any time of the year. The only fault we found last summer was that the place was inclined to be too warm, as the hives are on rock, and so much shelter keeps out the breeze too much. In the winter time in this location the thermome-

ter sometimes plays around 40 below zero, so this same shelter is an advantage.

Last fall a venturesome deer strayed among the bees; and, although he came there before the hunting season, from all accounts, I understand he was carried out a corpse, and he wasn't stung to death by bees either. With good boating and fishing near the place, every thing considered, this place is ideal for a summer outing, even if black flies and mosquitoes are quite plentiful in the early part of the season.

I might add that two other yards here in York Co., that are wintering outside, have not been visited since I got the picture-machine; but as the protection is similar to that of the other apiaries, no good would be accomplished by showing them, any way. The 250 colonies wintering in the caves out east, 200 miles from home, are safe from the "camera fiend" for a few months yet; but it is likely they will receive a visit from him some time next May.

Mount Joy, Ontario, Canada.

MAKING INCREASE DURING THE WINTER

Feeding Syrup and Artificial Pollen to Bees that Have a Flying Cage in a Warm Room

BY GEORGE T. WHITTEN

For the past four winters I have been experimenting with bees in a warm room for winter increase, and I find I can easily make two swarms from one colony, making three in the spring. This seems to be the limit, as I have only two windows available for the purpose; but I am perfectly satis-

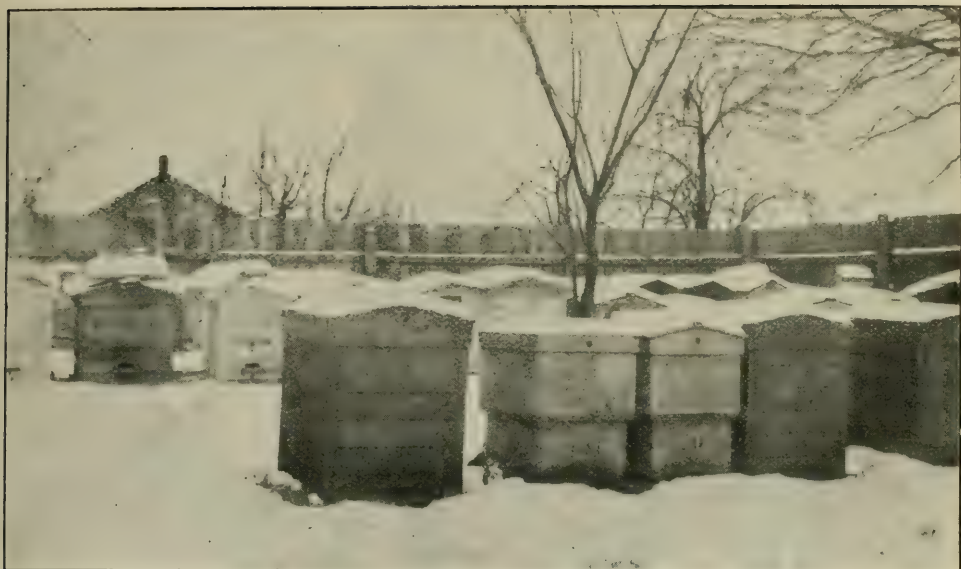


FIG. 3.—Corner of J. L. Byer's home apiary.

fied that it can be done, to the limit of the number of frames of bees on hand Sept. 1, and of windows available, if there is a room where the heat can be controlled as desired.

This work can be begun at any time during the winter by moving a colony inside and furnishing the necessary temperature of about 70 degrees per flying cage. The bees must be fed sugar syrup, rye flour, and water every day. Thus treated the queen

will begin laying in about three weeks, and keep it up as long as fed. Pollen, or a substitute, such as rye flour, is as necessary to keep the queen laying as syrup and water. Feed should be given every day, and two or three times a day is better. If the feeding is stopped for a few days the queen will stop laying, and it takes four to six days to get her started again. My experience has been that a queen will do just as



FIG. 4.—J. L. Byer's "Lovering" apiary in winter quarters.



Delegates in Attendance at the National Beekeepers

good work the following summer after being worked in winter in this way as though she had been wintered in the ordinary way. I can see no difference.

I feed sugar syrup wholly in winter—no honey—two parts sugar to one of water. I put the sugar in a jar and put the water in warm, not hot, and stir a little, then let it stand for a while to dissolve. By stirring it two or three times there is but little that settles in the bottom hard; then by running it through a cheese-cloth strainer this is taken out, leaving the syrup clear to feed. I have never had any of this crystallize in the hive.

The most satisfactory place for feeding syrup that I have tried is over the cluster. On all hives I have a frame made of pine, $\frac{1}{2}$ by $\frac{3}{4}$ inch, just large enough to cover the hive top, and with wire netting on one side. These are on the hives all the year. In winter they are over the top of the hive, under the super to hold the packing. This gives the bees a space over the frames close up under the packing. In summer they are on top of the super or supers. The cover of the hive may be removed at any time to look into the super without disturbing the bees. They do not come up and bother. I place two or three thicknesses of cheese-



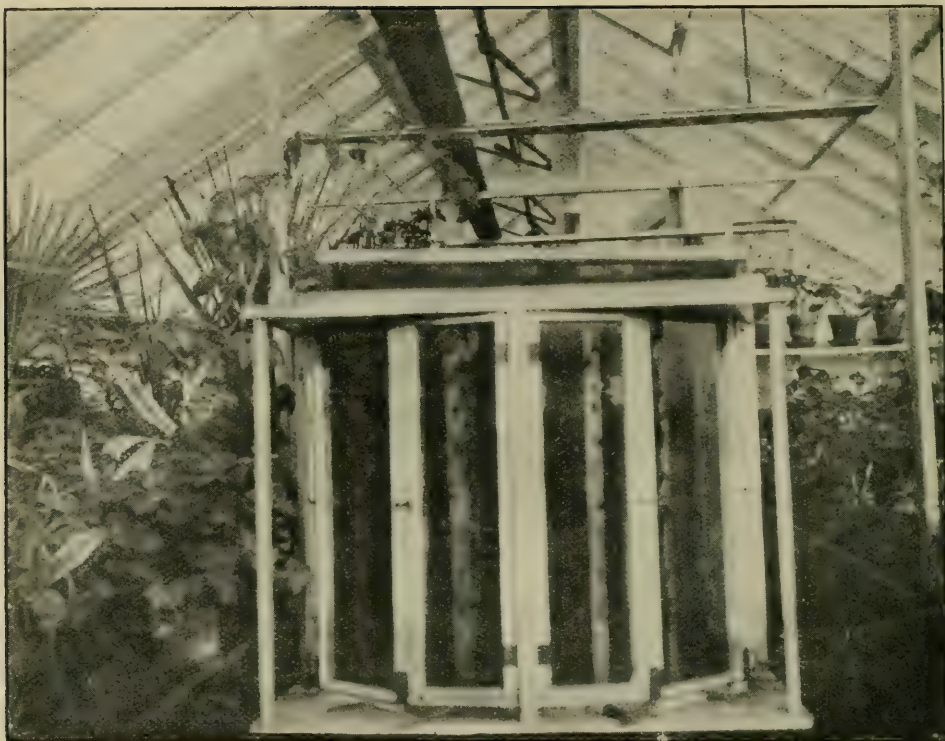
Cincinnati, Feb. 12, 13.—See report on page 190.

cloth over the frame, and spread the syrup evenly over this. The bees can come up under the wire and get the food without leaving the cluster very much. With the super on top they can be fed at any time by removing the cover. There is no danger of robbing when fed in this way, and the heat of the hive keeps the food warm.

The best way to feed rye flour is to sprinkle it on plants, or spread it on something that the bees can hang on while they load up. They do not take it readily from a dish placed on the floor, but will, when they can, hang on to the edge of the feeder, or the under side. I lay a cheese-cloth on

top of the cage, or hang it over the slanting end next to the window. They come up and hang on the under side with one foot, and load on all they can. The food should be placed where the light is strongest, for that is where they gather thickest.

I built a hive specially for observation work, that has been in use for three years. This gives perfect satisfaction. It is built on the half-circle plan, with glass on all sides. The frames are so arranged that they can be turned so that both sides of each frame may be examined at any time. Four turn to the left and four to the right. A rim is provided at the bottom, and handles



Geo. T. Whitten's observation hive in a greenhouse. The combs swing from side to side, so that all their surfaces may be inspected.

project out through, by which the frames are turned as desired.

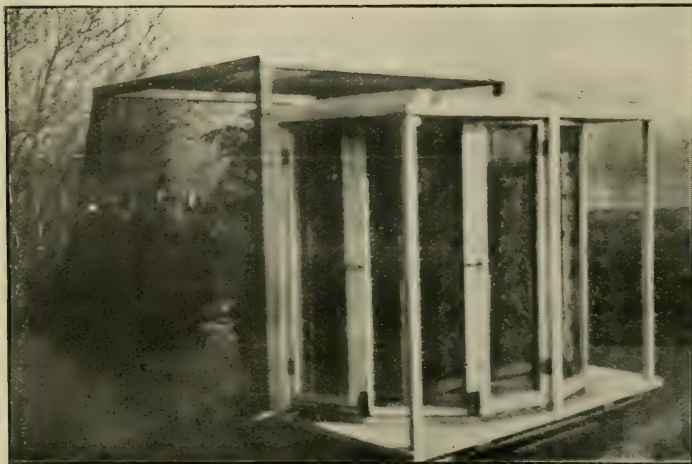
The flying cage used is two feet square, covered with wire, with an entrance in the back for the hive, and one at the front to allow the bees to go outside in warm weather.

The great advantage of a warm room,

and the principal one, is in keeping an even temperature, or nearly, so they can extend the brood-nest to any size without danger of the brood and eggs being chilled, which is the principal cause of spring dwindling. There are many eggs laid that do not hatch, for the reason that there are not enough bees to cover them when the temperature

drops after a warm spell. I have had this occur in the house when, for any reason, the temperature dropped too low, as by opening the window to cool the room, to drive the bees into the hive from the cage; or when I wish to change the plants or clean it out. That day, Dec. 21, I found young half-grown bees out in the cage.

This cage is close to a radiator, so there are bees flying at all times during the day and in the evening



Another hive, located out of doors, with the cage attached.



Bankston's nursery cage. Each compartment has room for a small piece of comb filled with honey.

as long as there is a light in the same room. To-day, Dec. 24, while the snow is falling fast outside, the bees are flying and humming in their cage as though it were June instead of Christmas.

Hartford, Ct.

A NEW NURSERY CAGE

BY C. B. BANKSTON

About 22 years ago there came into use what was known as the Alley nursery cage. This cage was simply a little square block of wood with one large hole in the middle, and two half-inch holes in one end. One of the small holes was for a sponge to contain honey for the young or old queen to eat. The other was for the insertion of the queen-cell. Twenty of the cages just fit inside of a Langstroth brood-frame.

We used this cage for many years. It beat the old lamp nursery, but it had many faults. The sponge would get dry, so that the queens would starve. A great many would hatch with crippled wings or were otherwise deformed.

I tried different makes of cages, and finally set to work and invented one myself.

I have used it nearly ten years, and have no idea of replacing it with any thing I have ever seen along this line.

In the Oct. 15th issue, page 663, is an illustration of a nursery which, apparently, is the old Alley cage re-invented. The accompanying engraving shows my new cage, which I call the "New Century" because I think it is new. The queens emerge in it perfectly, and they live and develop in it as well as they will among the bees, because they have access to honey, warmth, and all the conditions necessary for their well being. I fill the little combs full of honey, trim the queen-cells, touch the wax plug to the hot smoker, and stick the cell to the plug. I can have 60 queens hatch in one brood-frame.

Buffalo, Texas.

SEPARATING HONEY FROM CAPPINGS BY CENTRIFUGAL FORCE

BY R. F. HOLTERMANN

The discussions which take place at conventions are by no means the only source of information for the beekeepers who attend them. Conversations, sometimes in part in



Capping-basket to fit the comb-pocket in an extractor for use in separating the honey from cappings by centrifugal force.



Colonies in tenement hives.

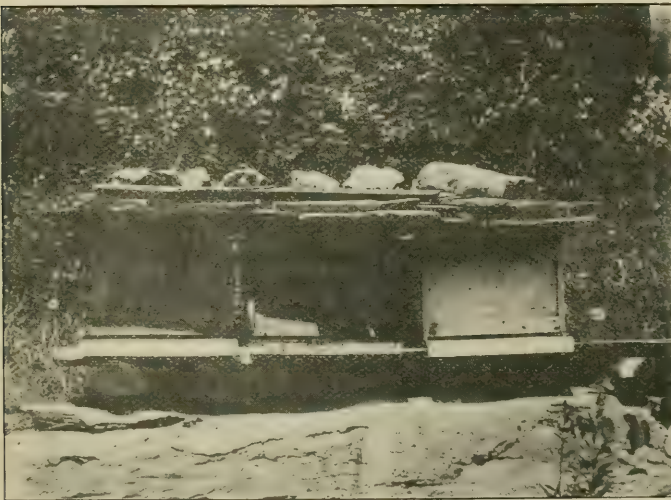
confidence, have for me been a fruitful source of instruction. There is, however, yet another source of information, and that is to visit some of the beekeepers in their homes after the convention is over. Such kindnesses to me have been frequent, and in no small degree have they been extended to me in New York State.

In December last I went to New York under the New York State Board of Agriculture, and upon completing my engagement I accepted several invitations from beekeepers to visit them at their homes and

apiaries. My first visit was with D. R. Hardy, Burr's Mills, N. Y. It was a stormy night when Geo. B. Howe, president of the New York State Association, and I landed at Watertown; but we were met by Mr. Hardy and taken to his home in the country, and made welcome. After supper a brief visit was paid to the bee-cellar and honey-house. Mr. Hardy is an unusually painstaking beekeeper. He is not afraid to follow original ideas, and he has evidently met with a more than average amount of success. He has been developing a strain

of bees about one quarter Carniolan and three quarters Italian. Turning to me, he said, "I can remember your suggestion years ago at a State convention, that such a bee was, in your estimation, a superior one." Mr. Hardy has been acting upon the correctness of this idea, and he appears to be well satisfied with the result.

For extracting, Mr. Hardy uses a power extractor and a three-horse-power gasoline-engine. Turning to the capping-can he said, "I want to show you



Hives set too close together for easy inspection.

my method of taking the honey from the cappings." A large wooden paddle was shown as the instrument by means of which he broke up the sheets of cappings. When these had been broken into small particles by stirring, he next put them into a pocket consisting of a box the size of a Langstroth frame. The top, bottom, and sides were formed by a wooden wide frame, and fine tinned wire cloth was nailed to each side. In the top piece (as it stands in the extractor) an opening was cut in the wood, through which, by means of a specially made funnel, the broken-up cappings were crowded, after which the device was placed in the extractor, just as a Langstroth frame would be inserted, and the honey was extracted just as honey is extracted from the comb. I saw the wax after the extracting, and found it very free from honey, and I felt that this plan filled a "long-felt want" in my extracting equipment. I told Mr. Hardy that I would make this outfit in the way of a basket with one entire side made to slide on and off. To this Mr. Hardy acquiesced, remarking that the box into which the cappings were placed could be made of heavy tin. I have six such baskets now ready for use. We shall have to call this apiarian implement the Hardy capping-extractor.

Brantford, Canada.

[This new method of draining cappings by centrifugal force is one that gives promise of much merit. We shall try it ourselves the coming season. Mr. Hardy's apiary is shown in the cover engraving for this issue.—ED.]

EXPERIENCES OF A FOUL-BROOD INSPECTOR

The Greatest Trouble that of Opening Hives

BY J. E. CRANE

I fancy that a good set of burglar's tools would be a very good outfit for an inspector in opening even movable-comb hives; for in nothing have I been more disappointed than in opening such hives. I believe that, as yards run, it is as easy to get into box hives as into those containing combs that are supposed to be movable. I thought at first it was because I found so many with Hoffman frames, and I still think the Langstroth more readily movable, when properly constructed; but the greatest difficulty has been because of crooked combs. Many beekeepers appear to be afraid of their bees, then hive them and run. At night they set the new swarm in its place as quickly as possible, and get away without stopping to

see whether every thing is all right. So I find hives with Langstroth frames properly spaced at one end, while at the other they have all slid together with no uncertain result.

HIVES STAND TOO CLOSE TOGETHER.

Some of my vexations have been caused by the position of hives which were set in long rows, perhaps not more than four inches apart, and which it was necessary to lift from their stands before I could open them. The three in the illustration will show what I mean; but three are easy compared to twenty. Often it is easier to open hives and to examine them than to lift off the stone, boards, and slate with which they are covered. I often think, as I make my rounds, how much the majority of beekeepers are losing by not knowing better how to keep bees.

NOT NECESSARY TO DISINFECT HIVE-BODIES.

When I began work, and found foul brood in almost every yard, it seemed like trying to fight an enemy that used noiseless guns and smokeless powder; but after more experience it seems to be controlled by well-defined laws; and those who are willing to follow a few easily learned rules can rid their yards of it. I am watching with a good deal of interest in order to determine whether it is necessary to burn out brood-chambers or to disinfect them otherwise. I have suggested to some experienced beekeepers to try it, without burning or disinfecting, and so far it has seemed to work well. The fact that many beekeepers have overcome the disease by leaving colonies queenless for a time would seem to indicate that it is not always necessary to burn out hives for the purpose of destroying all germs of disease.

If it proves successful it will greatly lessen the work of changing combs, especially where large chaff hives are used.

CLEANING THE TOOLS.

How shall we disinfect the tools we work with? Some inspectors advise boiling in hot water for half an hour—a safe provision against carrying infection to the next yard, no doubt, but far from practical, both because of the difficulty in getting hot water and the loss of time. Then an inspector's fingers often become soiled with foul-broody honey. Must they be cooked with the hive-tools for half an hour? I have compromised; and instead of boiling with water I thrust my hive-tool, when through with one yard, or before commencing on another, into the ground, in and out, until it is bright and clean, and I have no fear of its carrying disease. I also wash my hands in water if I can get it.

DEAD LARVAE ON THE GROUND SPREAD THE DISEASE.

There is one way by which I think it is possible that disease may be spread of which I have not spoken. Where many hives are diseased, thousands of the dead larvæ are hauled out of the entrances and left near by on the ground. These, decaying, may (after a little) become dust to be blown on or into flowers, into the entrances of hives, or carried by the bees where they will get into the food of young larvæ. I have in some instances advised a change of location with entirely satisfactory results. I have found two or three beekeepers who feed their bees a weak brine, thinking it very beneficial.

CEMENT HIVE.

One man I met had constructed a hive of cement. Unfortunately he had made a slight mistake in the size, so he could not use his frames in it, and so had never tried it. It looked substantial, and might prove a success in some parts of the country.

HONEY FROM CORN.

Another beekeeper told me how his bees gathered considerable honey from corn, and, later in the season, wrote me that again they had stored some ten or twelve pounds to the hive, thus helping him to solve his winter problem, for his bees, like most bees in our State, had not stored enough to winter on.

THE PLEASANT PART OF THE WORK.

While there are many unpleasant features in connection with inspection work, there are many pleasant experiences to be thankful for. It is pleasant to study the honey resources of one's State, and to see the advantages and disadvantages of different sections. One has also an opportunity to make some choice acquaintances, and to visit old friends without much loss of time or expense. One such I must mention.

Forty-three years ago I learned of a man about seventy miles away who wanted to sell out his entire stock of bees, as he had met with some loss and was quite disgusted. After some correspondence I went to his place and bought most of his stock. He was a very intelligent beekeeper for those times, and I much enjoyed the time I was with him, as he told me so much that was then new. Afterward we corresponded for a time, and I lost track of him, and I thought he had of me. While looking up foul brood in his neighborhood I thought I would go over to see him and inspect his bees, for I knew he would have some, for who ever, after once falling in love with bees, would go without them? I found him and his good wife more than pleased to see

me, and he could not do enough for me. I found that he had a good stock of Italian bees; and if they defend their homes against foul brood as vigorously as they did against the interference of the inspector it will be a long time before disease will do them any harm. After a most delightful visit he took me in his carriage over to see a neighboring beekeeper, and then to the trolley line.

Middlebury, Vt.—*The End.*

BRIEF REPORT OF THE NATIONAL CONVENTION AT CINCINNATI

BY E. R. ROOT

The attendance at this meeting was not large—indeed it was, perhaps, the smallest of any of its kind that we have ever attended. At no time were there over fifty present. In another way it was a large convention, because it was a representative meeting. There were delegates, each representing an affiliated society, from Vermont, Massachusetts, New Jersey, Pennsylvania, New York, Ohio, Kentucky, Michigan, Indiana, Virginia, Tennessee, Iowa, Oregon, Colorado, Idaho, and Texas; or, all together, a membership of several hundred. Some of the associations sent more than one delegate. In this connection it should be explained that this convention differed from all others in that it was a *delegate* meeting. Besides delegates, there were members of the Association who, while they had the privilege of the floor, had no vote in business matters. Then, as is usually the case, there was some local attendance, but not nearly as much as we ordinarily see at conventions located at Cincinnati. For that matter, there would have been a much larger local attendance, we understand, if the meeting had been held earlier, say along in September or October.

The Bureau of Entomology, Washington, D. C., was represented by Dr. E. F. Phillips, in Charge of Apiculture, and by Geo. F. Demuth. Dr. Burton N. Gates, Dean of the Apicultural School at Amherst, Mass., was also present. Indeed, he was elected presiding officer in the absence of Mr. Geo. W. York, the regular President. Mr. R. F. Holtermann and Mr. Foster, of Canada, represented Canada, but not as delegates.

This convention was unlike any of its predecessors in that its primary object was the transaction of business, and a lot of it was done. The principal subject of discussion at the first session was whether the National Association should have an official organ. Something over a year ago the Board of Directors voted to buy the *Beekeepers' Review* of Secretary Tyrrell. The

question arose whether the Directors had the authority to adopt and publish an organ, and expend a thousand dollars for the good will of a paper. Some took the ground that the Directors had exceeded their authority. Others held that the National organization could not afford at this time to pay out a thousand dollars. These matters were thrashed over in convention, and at one time the discussion became somewhat warm. The matter was finally referred to a committee, with instructions to report at a later session. The committee were out for a considerable length of time, but finally turned in their report, questioning the policy of the Directors, but finding that the latter had not exceeded their authority. At the same time, they made certain recommendations, some of which related to the editorial policies of the *Review*, while others had to do with the question of the purchase of bee supplies for the members of the Association, as well as to the selling of their product—in short, carrying out the general principle of co-operation.

There was considerable discussion as to the price that should be charged for membership. It finally ended with the recommendation, which was adopted, that the fee of \$1.50 should be retained as before. Fifty cents is to be used for branch or affiliated societies, and \$1.00 for *The Beekeepers' Review*. Sec. Tyrrell explained that this money could not be used to cover both the *Review* and membership dues, as that would be contrary to the postal regulations. This leaves, as we understand it, no funds for the National Association except the profits that may accrue from the publication of the official organ. A member may elect not to take the *Review*, and apply his dollar to the National.

There was considerable discussion as to whether the whole membership fee should not have been increased so that a part could be devoted to the branch, a part to the *Review*, and a part to the National itself, apart from the *Review*; but Sec. Tyrrell did not believe it was wise at this time to charge the extra price. The committee, therefore, made its report accordingly.

Other routine matters of business were transacted, such as revising the constitution, passing resolutions of thanks for courtesies extended, etc. While the committee were out preparing their reports, there was a general discussion of several subjects. One of these topics was

THE DECLINE IN THE PRODUCTION OF COMB HONEY AND THE INCREASE IN THAT OF EXTRACTED.

While poor grading and poor packing

were given as a cause for a part of this, several contended that the present market prices were more favorable to extracted. Two or three claimed that there was actually more money in the production of extracted at eight cents than comb honey at sixteen. The discussion finally centered on the subject of the granulation of Western comb honey; for it was contended that this granulation evil was disgusting the dealer so that he was refusing to buy. Mr. Muth, one of the largest honey-buyers, in a half-facetious and half-serious way, said he felt as though he were being swindled when he bought Western comb honey. He complained that he had a large quantity on hand that has granulated, and that was fit to sell only to Dagoes, and he thought it was time that some of these Western producers should produce extracted rather than comb honey. Mr. Weber, another dealer, said he had had a similar experience. Dr. E. F. Phillips, of the Bureau of Entomology, was glad that this matter had come up, for now the Western men present would have a chance to know that there was a general complaint about Western alfalfa honey granulating while in the hands of Eastern dealers. Like Mr. Muth, he believed that some of them, at least, ought to produce extracted rather than comb honey.

Mr. Wesley Foster, of the Colorado Honey-producers' Association, contended that not *all* Western alfalfa honey would granulate. There are certain districts in Colorado where a mixture of alfalfa and other sources would granulate much more readily than the pure alfalfa. He said he hoped the Eastern buyers would understand there is a large amount of Colorado alfalfa honey, and a good deal of it, too, that does not granulate.

Mr. Anderson, of the Idaho Beekeepers' Association, indignantly denied that Idaho honey granulates. *Their* honey, he said, was made up largely of sweet clover and alfalfa; that the combination would remain liquid as long as any comb honey in the world if properly taken care of. With all deference to Mr. Muth their honey was "fit for the gods" and not for the Dagoes only. In support of Mr. Anderson's claim, we may say in this connection that the comb honey of Idaho, so far as our experience goes, does not granulate readily.

GRADING COMB HONEY.

The question of grading-rules was given considerable attention. Mr. Muth, of Cincinnati, offered a set of rules which provide practically for only a fancy and a No. 1. No other honey, he said, ought to be shipped to market. Attention was called to the

fact that these rules, if adopted, would bar out a large proportion of all the comb honey produced; that there ought to be some means by which these lower grades could be described and sold.

Mr. G. F. Demuth, of the Bureau of Entomology, Washington, D. C., offered another set of grading-rules that differed radically from those presented by Mr. Muth. They were based on three definite points—namely, weight, finish, and color. The old Colorado grading-rules were based on a minimum weight of the case itself. The new Colorado rules, on the other hand, are based on a maximum and minimum weight of the section. He believed that this latter was the correct principle. His rules provided for three different weights, several grades of finish, including a fancy, a No. 1, a No. 2, and several shades of color. He recommended a scheme of colored cards that would enable the purchaser and producer to describe accurately the shade by a certain designation of color. The objection to the new Colorado grading-rules, said Mr. Demuth, is that they are not adapted to our Eastern honey. He would have the rules flexible enough so that they would take in Eastern as well as Western honey. He explained the system something as follows: In the matter of finish he would have extra fancy, fancy, No. 1, and No. 2. In the matter of weight he would have heavy, medium, and light. The finish would be designated by extra fancy, fancy, and No. 1 and No. 2. As for color, he would go by the color-card system. The three grades of weight, the four grades of finish, and the several grades of color, would make a variety of gradings. Here, for example, would be a section that he would grade as fancy, medium, white; or, for short, he would make it F. M. W., which would be marked in plain letters on one end of the case. Another case, for instance, would be marked No. 1 light amber, or be designated No. 1 L. A. Another case might be designated as No. 2, dark, heavy, or No. 2, D. H., and so on.

At the close of his general explanation Mr. Muth wanted to know if Mr. Demuth would hire a Philadelphia lawyer to make these discriminations. Both he and Mr. Weber expressed themselves decidedly as believing that such a system would be too complicated to be practicable—that with even the simple grades that have been in use, the average producer did not begin to grade in accordance with those simple rules. He hoped the complicated system advocated by Mr. Demuth would not be adopted. The latter explained that, although he was from

Philadelphia, his system was not as complicated as might appear at first sight. He wished to make it plain that the grading he proposed would take in any kind of comb honey—good, bad, or indifferent; that it would enable the producer to describe accurately what he had to sell, even though it were an off grade, and the buyer, on the other hand, to know just what he buys. He argued that one of the difficulties that arise between the producer and the buyer is the lack of some scheme to describe accurately the product under consideration. Both Mr. Weber and Mr. Muth expressed themselves as believing that such a scheme would be too awfully complicated to be of any use whatever. The rules were, however, adopted by the Association substantially as they were presented, except that the term "Standard" or "Choice" was substituted for the term "No. 2."

At the last session, after all the business had been transacted, and while the committee were out preparing a report, there was quite an extended discussion, covering the general subject of foul brood, over which Dr. Phillips presided. There being several foul-brood inspectors present, a report was rendered by each. The first was by Mr. Wesley Foster, of Fort Collins, Col., followed by Dr. B. N. Gates, of Massachusetts; Mr. Erbaugh, of Indiana; Dr. Ward, of Tennessee; Mr. Demuth, of Washington, D. C., and Mr. Cavanagh, of Indiana. The latter, while he is not a foul-brood inspector, has had a wide experience with European foul brood.

The discussion on this disease was interesting and valuable, because it showed the great importance of having vigorous Italian stock. But it seemed to be difficult to effect a complete cure with the ordinary black bees, in the case of European foul brood. The reports of all the men indicated that they were getting foul brood well under control. Not the least important thing in this inspection work was the information that the inspectors are able to impart, not only to those who have foul brood, but to those who have not.

An election of officers for the ensuing year resulted as follows:

President, Dr. B. N. Gates, of Massachusetts; Vice-president, Prof. H. A. Surface, of Pennsylvania; Secretary, E. B. Tyrrell, of Michigan.

The following were elected as Board of Directors:

E. D. Townsend, of Michigan; Wilmon Newell, of Texas; Wesley Foster, of Colorado; F. B. Cavanagh, of Indiana; J. M. Buchanan, of Tennessee.

Heads of Grain from Different Fields

The Folly of Using Small Rusty Tin Packages for Extracted Honey for the Retail Trade

Some large honey-producers are beginning to put up extracted honey in small tin cans or pails, when extracting in the late summer and fall, for the retail or family trade during the winter. Of course, this procedure is a more convenient and less expensive method than to put the honey into five-gallon cans, when extracting, and then later on perhaps remelt it and put it into smaller cans and pails for the retail or family trade.

But I happen to know a man who purchased, from two different extensive honey-producers, some of those self-same cans and pails, several months after they were filled, and some of them were the worst and toughest-looking honey cans and pails I ever saw. All looked as if they had been used before for some purpose, either for canned tomatoes or corn! In one instance they were all labeled with the producer's honey-labels; but the cans had become so rusted that the labels were loosening. In the other lot, while the cans or pails had not been labeled, they were rusted in spots, and were a "bum-looking" lot.

Now, no retailer of honey, nor any one working up a family trade in honey, cares to deliver it in what looks like second-hand cans. It is enough to discourage sales, as no nice clean housekeeper would want to buy honey the second time (nor the first time, for that matter) if it is put up in rusty containers of any kind, even though the rust is only on the outside.

If honey-producers are going to make a practice of putting their extracted honey in small tin packages at the time of extracting, then they should use only new bright cans or pails, and, after filling, store them in a practically dust-proof and very dry place, so that they will be kept clean, and also not rust. This is a very important matter indeed; for, some of these days, the honey sold in such second-hand-looking cans and pails is going to be *refused*—shipped back to where it came from, or held subject to the order of the shipper. And that would be simply what the shipper who will send out honey in such cans or pails deserves. No person who is endeavoring to work up a family trade in honey wants to deliver it in any thing but bright new tins, if he uses tin packages at all.

I think this is a matter worthy the attention of every producer who practices putting up his honey in the tin retail packages at extracting time.

Sandpoint, Idaho.

GEORGE W. YORK.

[Some of our old readers will recognize the writer of the foregoing as the former editor and proprietor of the *American Bee Journal* for so many years. He also did a large business in retailing and wholesaling honey in Chicago. He therefore speaks with a knowledge born of *experience*. He is entirely right in what he says.—ED.]

European Foul Brood and the Importance of Keeping a Strain of Italians that are Largely Immune to the Disease

You are lucky to have kept bees so long without having European foul brood. My experience with the disease is like that of Morley Pettit. It spreads to every hive in the yard, and to every comb that contains brood. Not only a few cells are affected, but less than half the young bees in a comb ever get out of the cells alive.

Dr. Miller's bees must have had the disease in a mild form, and then he had a hard fight and a long one; and he will be fortunate if the disease does not break out again next summer.

What I am most interested in now is to find a way

to get rid of the disease. I understand that when we brush the bees off the combs and put them in a clean empty hive and give them a new start they will start off free from disease; but some way they don't stay free. I understand, too, that when I take the queen away and keep the colony queenless till the young bees are all out of the combs, and the cells cleaned and polished ready for the queen, then put the queen back or give them another queen, the combs will soon begin to fill up with nice pearly-white brood; and I am not sure that the dequeening method is not as good as putting the bees into an empty hive; but about the next time I open the hive the white brood has turned yellow, and the disease is there again.

We are told to treat the bees when there is a good honey-flow on. White clover was abundant last year, but the flow did not come, and I worked at a disadvantage.

Oakland, Ill.

WM. COX.

[In some ways European foul brood is easy to cure and in other ways it is not. It seems to spread much more rapidly than the American type of disease, and, what is somewhat discouraging, the ordinary shaking process does not always eliminate the trouble. We have had a very large number of reports of how, after one shaking, the disease had returned again. We are coming more and more to have faith in the Alexander treatment; and that is, removing the queen and keeping the colony queenless and putting in pure Italian blood. There are some strains of Italians that are probably more immune to the disease than others. Mr. S. D. House, of Camillus, N. Y., has repeatedly told us that he has no fears of European foul brood, because he used a strain of Italians that would keep the disease off, and he has European foul brood among the black bees all around him, and yet his apiaries of Italians seem to be immune to any trouble of that sort.]

You do not say any thing about using Italian stock. While it is proper enough to remove the queen we think it is better to go even further, and put in good vigorous Italian blood. If possible, get a strain that will resist European foul brood—a strain that has been tried out and found to be equal to the occasion. We try to keep a strain of Italians that are immune to European foul brood. In all of our years of experience we have never had a trace of the disease.—ED.]

Overcrowding Bee-Ranges, and is there a Remedy?

I wish to ask about the law in regard to other apiarists crowding in on to one's bee-range. My neighbors and I started in this locality three years ago with our little bunches of bees. I have 25 colonies; the other neighbors of mine would bring the number up to about 75 stands—all our range will accommodate. Well, a few days ago another apiarist brought in 50 colonies of bees, and located them about 800 yards from my apiary, and is to bring in about 200 more colonies (so I am informed). What can I and my neighbor do about it?

Phoenix, Ariz., Jan. 20.

L. M. BROWN.

[You bring up the question that has often been discussed through the columns of our various bee journals, namely, the one of overstocking. There seems to be almost no remedy but a sort of unwritten law that prevails in some localities, not to put more than a certain number of bees to the square mile. Where the different neighbors and different beekeepers can get together and agree, they will divide up the territory in such a way that it will not result in overstocking; but very often outsiders come in and squat an apiary or two so close to bees already in the locality that the annual yield per colony is cut in two. There is no law in any State, with which we

are familiar, that regulates the number of bees that may be kept within a certain territory, and it is doubtful if any law would be constitutional if it were passed. The only thing we can suggest for you to do would be for you and your neighbors to go and visit these parties and explain to them that the locality is already overstocked; show them that, when so many bees are put in a place like this, it usually cuts down the yield; that it would be unprofitable for them as well as for you. The cost of moving bees from one locality to another is so great that the average beekeeper, if he looks to his own interests, will find some place where it is not already overstocked. The same problem that confronts the beekeeper around Phoenix and Tempe, Arizona, confronts the beekeepers in various parts of the West where alfalfa is grown very largely. We know of many localities in the West that formerly yielded anywhere from 100 to 200 pounds per colony; and now those same localities will not furnish more than 25 to 50 pounds per colony, simply because so many beekeepers have located in the territory that the yield is cut down. This policy results in a freeze-out game. After a few years the less successful will go out of business, or, rather, they will quit keeping bees or sell to their neighbors who are more successful, with the result that, in time, there will not be many more bees than enough to take care of the territory properly. No, there is absolutely nothing you can do except to use diplomacy of the finest sort, and moral suasion.

There is one thing that you can do: If these people who come in to your locality are bringing in diseased bees, they can be stopped. Go to your foul-brood inspector and have the bees inspected. If they have disease they will have to be removed or treated immediately. Most States have a law now by which it is unlawful to ship diseased bees into the State. Where you can learn that such shipments are contemplated you can have the inspector on his watch and have the bees stopped and examined before they come inside. Come to think, however, Arizona has no foul-brood law, so that you really have no recourse of any sort except moral suasion.—Ed.]

Requeening to Prevent Swarming; Does a Capping-melter Make a Room too Warm to Extract in?

Can you advise me of any beekeepers who dequeen their colonies to control swarming? I have heard that some beekeepers remove all queens at the approach of the swarming season, holding them in a nucleus for a time, and returning them in about 10 days.

I have seen the description of the new capping-melter. Does it throw very much heat when in use? We have always been afraid that we couldn't stand the heat which would come from it. Could a gasoline stove with an elevated tank be used instead of the coal-oil stove? Please advise as to how much floor space the capping-melter occupies.

Wooler, Ont., Jan. 23. WARRINGTON SCOTT.

[The practice of dequeening a colony to prevent it swarming is not so common as it was a few years ago. It works in a few cases with ordinary Italians; but in a yard of Carniolans that we tried out last summer it absolutely failed to do the work. The Carniolans swarmed out with their virgins, and made us no end of trouble; and if they had no virgins they would unite with some swarm in the air. One objection to dequeening to prevent swarming is that it takes the life and energy out of a colony. One with a queen will be much more active than one without, as a rule. We do not know of any one now who is practicing that method of swarm prevention.

Regarding the capping-melter, the board in the table is 4 feet long, 2 feet wide, and stands 29 inches high; and the pan is 18 inches wide and 3 inches

longer than the table, so that it projects at one end to hold the knife, so that the uncapping-knife can be dipped in hot water.

You ask whether this machine with the stove will heat up the extracting-room. A good deal will depend upon the size of the room. If it is of sufficient size to work to advantage, and there is plenty of ventilation, you will not notice this extra heat; but if the room is small, and only a single-thickness wall, and exposed to the sun's direct rays, on a hot day you will find the capping-melter rather warm to work over. If you are in a position to get an electric fan it will cool the room and keep it very comfortable while you are working. If there is no electricity, it is very easy to rig up a little fan in connection with the extractor. A gasoline-stove with an elevated tank can be used, provided the pipe is extended a foot or so, horizontally, so as to be out of the way of the melter.—Ed.]

Good Bee Locations in Oklahoma and Kansas

If you were to choose a location where you could branch out in the bee business and make the production of honey your only business, where would that location be? G. M. WHITFORD.

Arlington, Neb., Jan. 20.

[The question propounded above is a rather hard one to answer. There are many very fine locations in the United States that are not already occupied; but there are many other good locations that are already overstocked with bees and beekeepers. Some splendid locations have been utterly ruined because with too many beekeepers in the locality it injures the business so that there is no profit in it. There are many good locations in semi-arid regions of Oklahoma, Kansas, and Nebraska. In these States it is advisable to locate in a valley along some stream, and we would not go into the bee business very heavily anywhere unless the alfalfa or some one of the clovers can be grown quite extensively in the locality. There are many places in Oklahoma and Kansas, for example, that have almost no bees, and yet where alfalfa is grown. In such locations there are some splendid opportunities for the keeping of bees. The business perhaps is more profitable in the irrigated regions where alfalfa is produced; but one difficulty in such locations is that the field in most cases is already overstocked with bees and beekeepers. We find, however, that there are many locations in semi-arid regions where there are practically no bees kept. While the alfalfa does not yield as well, perhaps, in what is called the dry-farming districts, yet it yields enough to make the business very profitable, providing enough colonies are kept. We do not care to indicate any particular locality, but would suggest that you make a tour through northern Texas, Oklahoma, and Kansas. There are many splendid locations in your own State; but be careful to find some place along the rivers and creeks, especially in the valleys. High land is not as good a place to grow alfalfa in a semi-arid State as in the valleys.—Ed.]

Little Mortality Around Cincinnati

Bees are wintering perfectly here on their summer stands—very light mortality; less than a handful to each hive. Bees had five flights during December, and nine so far in January, as follows: Jan. 1, 2, 6, 18, 19, 20, 23, 25, 26. Has any one ever seen similar conditions? Colonies will surely come through the winter exceptionally strong, and they were packed with stores late in the fall, so there is hardly any likelihood of starvation. White clover is very abundant; and unless all signs fail, we will have a fine honey year in 1913. In this locality, bees will start gathering pollen about March 1. I have 11 colonies in good condition in my back-yard suburban apiary. Cincinnati, Jan. 27. ALBIN PLATZ.

Our Homes

A. I. ROOT

For I the Lord thy God am a jealous God, visiting God.—MATT. 5:8.

God hath said, Ye shall not eat of it, neither shall ye touch it, lest ye die.—GEN. 3:3.

For the Lord thy God am a jealous God, visiting the iniquities of the fathers upon the children unto the third and fourth generations of them that hate me.—EX. 20:5.

I want to talk this morning particularly to the young men and young women who are in the habit of reading these Home talks. My talk will also be to the middle-aged; and, before I close, I shall have something to say to the elderly ones, the ones whose hairs are beginning to get gray. I suppose most boys and girls, especially as they reach maturity, begin to think of this matter of *getting married*. It is sometimes true that the girls especially talk so much about getting married that they don't have room or time for any thing else. This is not just the right and proper thing to do; but it is true that both boys and girls should consider that God gave each one of us a human life to live with the thought in view that we should be "fruitful, and multiply, and replenish the earth;" and, in fact, I have touched upon this matter several times in these Home papers, of the damage that can be done to humanity by the offspring that, in the course of years, come from a single pair of men and women who are viciously inclined. On the other hand, we have many instances of how the world has been greatly blessed by a long line of people who *feared God* and loved humanity, and who have handed down their lifework to children and grandchildren until the world will scarcely ever know how much benefit has been conferred on humanity by the fact that they not only lived a good life but reared up boys and girls to follow after them along in the same line. Now let us take it for granted that most boys and girls expect to get married some time; that they expect, God permitting, to have a family of children. Now, my young friends, what *sort* of children do you expect to rear up and bless (or curse) humanity? I need not tell you how much time is being devoted now, especially in our agricultural papers, to this matter of selecting and rearing improved stock and planting good seed, which is along in the same line. Take the poultry industry, for example. How much time and money are being expended in getting a good strain of fowls whose eggs can be sold for not only a dollar apiece, but *ten* dollars apiece, and sometimes even more than that? In order to get a good parentage to start, no stone is left

unturned. On page 605 of GLEANINGS for September 15 we had a vivid illustration of how much pains the government of the United States is taking to stamp out injurious insects and things of that sort; and our attention is now called to the fact of how little is being done to improve the race of boys and girls and men and women.

Sometimes in talking with hardened criminals in our jails I have asked the question, "Would you want to see a boy of yours doing exactly as you have done?" The answer invariably comes, "God forbid." Even a hardened criminal has some scruples about seeing a *child* of his follow in the footsteps of crime. Now, my young friend, let us get back once more and ask the question, "What kind of boys and girls do *you* propose to give the world?" The Bible says, and our agricultural and poultry papers say, that like produces like. If you give way to vicious and impure thoughts, your boys and girls will be likely to do the same. The Bible tells us that this work *must* go on until the third and fourth generation. By the way, I have at different times heard critics find fault most severely with this passage in the Bible. It is repeated *four times* in the Old Testament, if not more. They ask what justice there is in punishing innocent children for what the parents did before they were born? My good friends, let me call your attention to the fact that God does *not* do this punishing. The father and mother do it themselves, and with the plain statements of the Scriptures before them; they do it with their eyes open; they do it deliberately and willingly. I once knew of a man who was an illegitimate child and part negro. He inherited his father's intellectual abilities and became quite a scholar. When he was grown up he said something like this: "My father deliberately cursed every single day of my life by giving way to a low, beastly impulse and passion. He did that almost in a single *moment of time* that has blasted every hour and almost every minute of my whole life."

Listen to this: A good mother, a good and wise mother, whom I know full well, once went along with her boy while a party were visiting the county infirmary. After they got home this bright boy, who had already begun to inquire into "cause and effect," asked his mother the question how it came that there were such a *lot* of people who were imbeciles and idiots. How does it come about we have such fearful

exhibitions of wrecked humanity? and why are there so many of them in almost every county? This wise mother might have told him just what was one of the greatest agencies in bringing this about. But I do not know but she was wiser still when she pointed him to one of the texts that I have chosen at the head of this paper. Come to think of it, I do not know after all that she called his attention to the text. I do not know what words she used, but it was something to this effect, and the boy has never forgotten it, even though now he is a grown man. The mother told him at least a large part of the idiocy and imbecility came from breaking a holy command that God has not only written in his word, but has implanted in the heart of every child of humanity, more or less. Let me digress a little right here.

From the time we come into this world until we step out, dangers beset us on every side. The babe is only a few months old when it reaches out its hands to the hot stove or to the candle, and is told, "Burny! burn! Mustn't touch it," and so on through life it has to learn. Sometimes when it is all by itself it thinks it will try the experiment and *see* what the consequences will be, and, sure enough, the little tender finger is burned, and it gets a lesson in the way of punishment. Eve told the tempter that God said they should not only refrain from eating of the tree of knowledge, but that they should not even "*touch it*."

My dear friends, there are things in the make-up of all of us where danger lurks near, whenever we even so much as touch the forbidden thing. Not only has God's holy word forbidden our touching it, but our consciences that he has implanted within us to tell us when we are getting over on to the danger ground. None of us know exactly, but it has always seemed to me quite probable that God proposed, in his own time—that is, when Adam and Eve arrived at the proper stage of human life—to make known to them all about the fruit of that tree, the tree of the knowledge of good and evil; but, as I have said, we don't know exactly about this. We *do* know, however, that God has planned, when we are fully matured, to give us knowledge that would be hurtful and dangerous to childhood and early manhood and womanhood. If you want to live to a good old age, and if you want to enjoy to the fullest extent every year of your life, let me urge of you to cultivate not only pure actions and words but pure thoughts. "Blessed are the pure in heart, for they shall see God." This one beautiful text covers the whole of it; and

you *know* when you are pure in heart (when you permit other than pure thoughts to enter your mind) better than anybody can possibly tell you. Sometimes parents excuse their sons by saying the young man is sowing his wild oats, and that in due time he will get over it and come down steady and honest. Perhaps the word *honest* is not just the one I should use here; but I think, after all, I will let it remain. Suppose he does get his crop of wild oats sown, and settles down honest and steady, and marries a good girl. Do not those wild oats, sown long ago, bear any crop? My dear friend, the crop is the one I have mentioned in the infirmaries, poorhouses, and insane-asylums in this land. Do you want to contribute to such a crop? Whatsoever a man soweth, that shall he also reap.

God has wisely planned to arrange so that the best years of every man and woman shall be used for the production of offspring. If you want to make a good contribution to humanity, it is not wise or well to commence too early in life. Wait until you are *fully matured*. In the same way it is not wise nor good sense, in ever so many ways, to delay the matter too long; in fact, God has placed a limit to motherhood, and I have sometimes thought he ought also to have placed a limit on all. I *do* know that old men frequently, after having given up the cares of life, perhaps moved into town and settled down to take things easy, still allow thoughts to take place in their minds that should be put away and forgotten *for ever*. I have known friends of my acquaintance who have gone to the insane-asylum, I think just because they gave up work and persisted in indulging in things that ought to have been put away long ago. If you want to live to be a hundred years old, if you want to have the full use of the powers of both mind and body, do not, I beseech you, ruin yourself, both body and soul, by letting selfish and ignoble feelings have any place in your thoughts or actions or life. I feel quite confident that there are people whose eyes rest on these pages who have had glimpses of the insanity and imbecility that come right along the very line on which I am talking. Perhaps they heeded the warning that God sent, for I feel sure it *is* God himself who does send such warnings to turn us back into the straight and narrow path. The very first pages of the Bible tell us that man was created in God's own image, and we are told in the back part of that same holy book that we are designed to be temples of the Holy Ghost. How can the Holy Ghost have any place or any perma-

ment abode in a body that is filled with things that are abhorrent to every honest and enlightened conscience? I am afraid that many physicians, or at least a large part of them, are not plain-speaking and honest enough to tell people who come to them just *where* the trouble is. Sometimes

I am sorry to say that these same physicians, especially if they are not *God-fearing* men, are making such a poor record *themselves* along the line that I have been speaking of that they have not honesty and consistency enough to tell the patient who comes to them where the real trouble lies. We are just now being informed through all classes of periodicals that the saloons of our land are the hotbeds of every sort of iniquity along in the line I have been discussing. Their business extends from the "white-slave traffic" to the work of spreading indecent pictures and literature in such a way that they may fall into the hands of our children.

In closing let me submit a letter from a good brother who has had much to do in inducing me to take up this line of talk at this present time.

Dear Brother Root:—In the first place I wish to give you (The A. I. Root Co.) a little bit of encouragement. I never knew any company engaged in a secular business that took as much stock in spiritual things as your company does. Sometimes I have wondered if the different members of the company were a unit in the good work. Again, I have caught myself asking the question, "How long will they keep it up?" But be that as it may, I hope that in this thing you may "abound more and more," for indeed it is a praiseworthy thing. I simply can not find words to express my appreciation of the spiritual part of your journal, and Our Homes beats any thing I ever saw outside of a religious paper, and if any one were not in sympathy with the religious part of your work the other is so good that he will take your publication any way—or at least it seems to me it would be that way in many cases. I think from one end to the other GLEANINGS has the cleanest set of writers I ever read. I am not saying this to puff you up, for indeed once in a while I see expressions that I think should not be there.

There is one thing, however, where you have not sounded the warning as much as its importance demands. When I think of my boyhood days and remember how many of my playmates and others that I knew are in their graves, and still others who have been in the insane-hospital, and that there are but few strong ones among all the living, and remember, also, their vices, my heart is filled with an inexpressible something. I well remember young men that were so weakened by the solitary vice (or by visiting places of ill fame) that they had no reserve vitality. I remember that when some of these would occasionally get drunk, good people would point to them and say, "See what drink will do." But the *real* cause was never, or at most very rarely, spoken of.

As I have followed some of my playmates to the grave, and have listened to the insane chattering of others, and knew the *real* cause, my innermost soul has cried out for some one to warn the coming generations. This is all true, notwithstanding the

neighborhood in which I was brought up was exceptionally moral. I can not tell all the particulars of how it came about, but let me say this: A bad boy visiting or sojourning in a neighborhood can and will do an incalculable amount of damage; and one family of youngsters spending the night with the young people of another home while the parents are away (or without the proper oversight if they are at home) is a most opportune time for the *de stroger* to get in his work.

And now, Bro. Root, if the enemy got in such deadly work in this way, in that day, in a community above par in morals, restraint, and carefulness, what must be the awful harvest in the near future where the young "just grow up" as they do in so many places to-day?

I often shake hands with some mere boy with signs of debauchery plainly written on his face; and how my soul longs to pour out itself in a helpful way to him! But if you have ever tried it you know how hard it is to say the right thing in the right way.

I am writing these things hurriedly, and you may have to read between the lines to get all I should like to have you get, and, again, you may not have seen the dreadful realities of these things as I have, and think I am *overdrawing* them; but "I know whereof I speak." I have been in a position where I saw cause and effect—saw the cause 30 years ago—some more, some less, and have watched the effect as some went to the grave, some to insane-hospitals, and some to a more or less wrecked manhood. I have observed, too, that so many children start in life handicapped, suffering for the sins of their parents, without vitality enough to carry them very far out into the sea of life.

But may be I had better change the subject; for if I get started I may not stop soon. But just one word more: A little over a year ago while talking to a mother in the south part of the State in regard to the "white-slave trade" and kindred things, she said, "I aim to raise my girls right," and she meant it too; but I thought to myself, "Whom will they mate with?" Isn't it *awful* to raise girls up right and then have them mate with some depraved or "disease-ridden" man? It seems to me just now as if you may have something to say on these things in your Home talks.

A COMPASS WITHOUT MAGNETISM.

The following, from a nephew of A. I. Root, explains itself:

Dear Uncle:—As I am rather near you at present I will drop you a line. I am in good health, and also very busy, as this is a brand-new ship and needs lots of work. I am a gyro-compass man now, on board this ship. It is a very interesting instrument. I wish you could see it. It is a compass which has no magnetic effect at all. It is run by electricity—a motor which runs 8600 revolutions a minute, and runs in a vacuum. If I can get a folder on it I will send it to you. It was invented by a man by the name of Sperry, 216 William St., New York.

HOMER H. ROOT.

U. S. S. Arkansas, Key West, Fla., Dec. 21.

We clip the following from the *Cleveland Plain Dealer*:

APPROVES GYRO COMPASS; NAVAL EXPERTS CALL IT BETTER THAN MAGNETIC.

WASHINGTON, Jan. 24.—Battleship tests with the new gyroscopic, or "battle," compass, reports to the navy department to-day announced, have demonstrated that it not only is a vast improvement over the magnetic compass but that it will pay for its cost and installation within two years in the amount of coal saved. This saving would be accomplished by,

cause a steadier course can be maintained by the use of the new compass, and therefore changes in speed to regain headway would be greatly reduced.

"The gyro compass is not yet wholly satisfactory, mechanically," the report confesses; "but when the remaining defects have been corrected, and it is capable of standing up to its work for long periods,

its installation on all capital ships will result in greater coal economy and in more satisfactory handling of ships."

"This last-named advantage," the report concludes, "would be especially gained when warships are steaming in squadron or were engaged in formations or evolutions."

Poultry Department

INDIAN RUNNER DUCKS; WHY THEY DON'T LAY, AND WHY THE DUCKLINGS DIE.

Mr. Root:—Will you please tell me why my Indian Runner ducks are not laying? They have not laid in almost three months. Can they be picked? My little ducks all die. What do you feed them?

Parish, Fla., Dec. 26. MRS. H. L. GILLET.

My good friend, I don't know that I am exactly competent to answer your inquiry. All the Indian Runner ducks I have ever kept have always laid more or less. I have had no experience in picking ducks; but I understand through the poultry journals that where you want to get eggs you must not take off the feathers. The ducks can not very well furnish a crop of feathers and a crop of eggs at one and the same time. I feel sure your trouble about the ducks not laying is in the feed. Ducks must have either soft food or else grain soaked in water. I have explained several times that I feed all my corn and other grain in a tub half filled with water. This accomplishes two things. It gives the ducks the moistened food as they need it, and water with their food, and at the same time it prevents rats or other vermin from helping themselves to the grain. Our laying ducks are fed mostly on corn and a little wheat with the corn; but as they seem to prefer the corn, that is the principal part of their diet. Now, I would vary this diet were it not for the fact that they go out in the canal every day from eight o'clock in the morning until about four in the afternoon; and in the canal they get a great variety of animal food and vegetable food along the banks. We have always fed our ducklings and little chickens bread and milk for the first three or four days, or say a week, and this milk has furnished the needed animal food. A very important thing for little ducks, and I think little chickens also, is to give them green vegetable food; and as they seem to prefer lettuce to any thing else, I would try to have some lettuce leaves ready for them when they are two or three days old. The bread and milk, of course, gives them a certain amount of animal food; but when we take a hatch off the incubator there are more or less infertile eggs, and eggs at the close of the hatch that are only partly developed. These are all boiled, and I give the little brood say an

egg a day, cutting it up fine at first to teach them to eat it. I should have said that the lettuce is also cut up in little bits until they get an appetite for it. After both ducks and chickens have learned to eat lettuce you will find that they will leave any other food when the lettuce is offered them. Some have objected that bread and milk is a rather expensive diet, especially where there are very many chickens.

Now, here is something I want to tell you all. I have had it in mind for some time. One of our bakers here in Bradentown has considerable stale bread; and especially is this true Monday morning. With the agreement that I take it off his hands, he lets me have it at the very low price of a cent a loaf. On one occasion, when he had had bad luck with his yeast or his "rising," there were over a hundred loaves that I got for a cent apiece. Now, the poultry journals advise that the bread and milk be made by first toasting the bread or drying it in an oven until it is hard and brittle. When you are ready to feed them, pour a little boiling water on it, which quickly softens up the bread. Then mix it up with milk. This baking is especially important when the bread is very old, because the strong heat kills all sorts of germs that might have been deleterious to the chicks. After the chicks or ducklings are a week or ten days old we mix in gradually a little bran and middlings, and finally their mash is bran and middlings alone, perhaps adding some Indian meal. On one occasion, when I was obliged to be absent, I left some little ducks in Mrs. Root's care; and as she had not paid very much attention to my duck experiments she gave them chick food as you do chicks; and before I got around home several of them had died. Now, this fact should be kept in mind—that ducks can not digest their food unless they have water with it. You will notice they first take a bite of food and then a drink of water, and so on alternately. When they are given dry grain some distance away, I have seen them run hurriedly a good many rods to get a drink of water, and then come back again after their grain. Running water, if possible, should be provided close by where they get their food. They can then help

themselves to their oft-needed drink. The ducklings can be fed wheat, provided it is soaked so as to be soft, after they are two weeks old. You have probably noticed that both ducklings and chickens when they become accustomed to one kind of food get it into their heads that they can't get along with any thing else, and there will be quite a little teasing if they don't have their accustomed diet.

In regard to animal food for ducks, in one of Cypher's catalogs he gives illustrations of two flocks of ducks. One had plenty of animal food from the start, and the other had nothing but vegetable food. Both flocks of ducks were hatched from the same eggs, the same in number; but at the end of several months the number of vegetarians had been greatly reduced, and they did not compare at all favorably with those that had the meat diet. From this it seems evident that ducks especially must have a considerable amount of animal food in their ration. If they do not they will suffer. Another thing, we want to be sure that they have plenty of fresh air. I think many chickens and ducks are killed by artificial heat when such heat is not needed. With what experience I have had with ducks I should say that they are the easiest fowls in the world to raise. From all the ducklings I have brought to successful maturity down here in Florida, I can remember only one that died unless it was by accident. Give them an enclosure when they are little, where no rat or wild animal of any sort can possibly get to them, then let them have their liberty, and run and enjoy life and be happy.

Just before dictating this I went out and had a look at my twelve ducklings hatched out by an Indian Runner mother, and it is wonderfully interesting to me to study a sitting *duck* and her habits and ways of managing, as well as studying a sitting hen.

POULTRY-NETTING BASKETS FOR FEEDING CHICKENS GREEN STUFF, ETC.

Since what I have said in regard to this I have made another big discovery. Listen and see if you do not agree with me. After what I said about rolling up a piece of poultry-netting, something seemed to keep saying to me that I had seen a basket somewhere that was just the thing, that we had already in use. Finally, one day in going through one of our store rooms I saw some poultry-netting hens' nests hanging up on a nail. These were bought from Sears, Roebuck & Co., at a cost of only 4 cents each, and they had never been used because they are almost too conspicuous to please the

"biddies" unless they are screened by a box or something of that sort, to make them more retiring. As I never got around to do this they remained there unused. In a twinkling I had twisted some wires around the upper edge to hang them on the poultry-netting fence, and they made just the prettiest baskets for holding lettuce and green stuff that can be imagined. In your garden you frequently have lettuce, radishes, turnips, and mustard sown too thickly. Well, when you pull out the surplus plants and throw them on the ground the chickens will just drag them around without being able to pull off the leaves so they can eat them. With this wire-cloth basket the thing worked to perfection. Put any old outside leaves from cabbage, lettuce, turnip tops, etc., from the kitchen, and all such stuff, into these baskets, and it will be eaten up perfectly with scarcely a remnant. With our convergent poultry-yards we simply hang the baskets on the outside of the fence clear around the circle; then, in order to feed the chickens green stuff, we do not have to open the gates at all. Just go around with your basket of lettuce, or other green stuff, and drop a handful over into the hens'-nest basket, and it is done in a twinkling. For little chicks, of course, you have to hang them lower; and it is one of the prettiest sights I ever saw in the poultry-yard to see an incubator flock of chickens busy at work at a great head of lettuce suspended just over their heads in one of these baskets.

While on the subject of these wire-cloth baskets I want to say that a poultry-netting *bottom* for any hens' nest is certainly a very fine thing. While visiting our Ohio Experiment Station I noted that their trap nests were all made with poultry-netting bottoms. This let all accumulation of broken straw, chaff, etc., drop down through out of the way. And, by the way, about the best material for hens' nests that I know of is soft hay. Our Bermuda-grass hay that grows down here in such profusion is just the thing. As often as the hens break it up and let the fine part drop through, some more fresh hay can be supplied. In this way the nests are always nice and clean and sanitary.

I want to say something more about lettuce. About three miles south of us is a young market-gardener who has several acres of perhaps the most beautiful lettuce that I ever saw. Well, a few days ago he told me that if I would come down with my auto and get it I might have all the lettuce I wanted. That is, by selecting heads that were not fit for shipment I could probably

get all my fowls could consume. Accordingly I went down, and almost immediately after feeding plenty of lettuce in these wire-cloth baskets we had a great increase in eggs. One reason for this is, perhaps, that my chickens hadn't been getting *enough* green stuff, or such green stuff as they particularly preferred; and I find, by experiment, that there is nothing in the *whole round* of vegetation that pleases chickens like the nice head lettuce grown here in Florida. They will not only leave the grain but they will leave the meat scraps from the butcher's in order to get this lettuce, and just the sight of the great nice heads of lettuce seems to set them to singing. In fact, as soon as they see me approach with a big bundle of lettuce they all run for me as they do for nothing else. I believe it would abundantly pay every poultry-keeper (at least on any considerable scale) to grow lettuce especially for his fowls. Mustard may answer just as well, or better, on account of its pungency; but I haven't been able as yet to ascertain this fully. But the wire-netting baskets I have been speaking of are certainly the finest things in the world to feed mustard leaves, or leaves of any thing else, for that matter. The lettuce mostly grown here for shipping to the northern market is what is called the "Big Boston." This makes heads like heads of cabbage; and even the smallest chickens, when only a few days old, will learn the trick of eating out every particle of these large heads, especially if they are placed for them so they can get at them like the poultry-netting hens' nest I have been describing. I presume you can buy these hens' nests at almost any hardware store, but perhaps not quite as cheaply as the price I have mentioned. The little Indian Runner ducks seem just as greedy (if not a little more so) for the lettuce as do the chickens; and I am sure it conduces very largely to their health and growth. Aside from the egg-laying and the increased health by the use of plenty of lettuce, it is worth a good deal to have something that will make your wild untamed fowls tame and good-natured—even the crazy Leghorns that attempted to run clear off the premises without any adequate provocation. When they come to learn to eat lettuce they will get around you and become tame in short order—that is, after they once get a taste of the lettuce they seem to value so much.

HENS' NESTS; IMPORTANCE OF SHADE.

By the way, there is one serious objection to the hens' nest that I pictured last summer when I was describing and planning the convergent poultry-yard. The nest, as

I have it, is all right during cloudy days; but when the Florida sun comes down very hot on those sloping roofs it gets so warm inside that the hens go somewhere else to lay their eggs; and their old nests that were previously provided for them under the roofs where they roost at night seem to be much preferred during the hot days, especially in hot weather. There are two reasons why I don't like a hen's nest on the ground. First, the hens seem to like to climb up to some place to lay their eggs, perhaps to get away from "varmints," and also have some privacy; and, secondly, it is hard work for an old man to go around to very many nests and stoop over every time. When the nest is raised up a convenient distance from the floor this is done away with. The nests should be of easy access to both the hens and the owner. The nests should also be dark; for I am satisfied a dark nest is a great preventive of the habit of eating eggs. Besides, a hen on the nests greatly prefers to be where she is not easily seen by any one who happens to pass by. I would have the opening whereby she gains access turned back the other way from where the attendant is likely to pass.

SOME MORE "STRAWS" THAT "SHOW THE WAY THE WIND IS BLOWING."

The following clippings from the *Baltimore Sun* show progress surely. Behind the bars is the proper place for a drunken chauffeur. Long live Gov. Sulzer.

BAN ON DRUNKEN CHAUFFEURS; GOVERNOR SULZER SIGNS BILL PROVIDING FOR THEIR PUNISHMENT.

ALBANY, N. Y., Jan. 16.—"I don't think we ought to countenance drunken chauffeurs. Sober ones have hard work in dodging pedestrians."

Thus spoke Governor Sulzer to-night as he signed his first law as Chief Executive of the State. The new law provides one year's imprisonment or a fine of \$500, or both, as punishment for an intoxicated chauffeur operating a car.

A FREIGHT-CAR CONDUCTOR QUOTED AS SAYING THAT TWO-THIRDS OF ALL RAILROAD WRECKS DUE TO NEGLIGENCE ARE CAUSED BY DRINK.

TO THE EDITOR OF THE SUN—*Sir*: In his admirable letter on railroad accidents published in to-day's *Sun*, Mr. Torsch fails to mention the most frequent cause, to wit, drink. A freight-car conductor said to me yesterday that two-thirds of all wrecks resulting from mistakes or negligence were really caused by drink. He said he had seen many wrecks; and, with the exception of those caused by broken rails and wheels, they were nearly all caused by drink.

By drink he did not mean drunkenness, which is a rare vice nowadays among railroad men, but that lethargic state of mind which results from so-called moderate drinking, and which is produced in some men by one drink of liquor. He said there is little drinking among railroad men while on duty, but there is nothing to prevent them from coming to their work after taking one or more drinks.

Baltimore, Dec. 18.

ONE WHO KNOWS.

Gleanings in Bee Culture

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Editorial

At the Cincinnati National convention, Secretary Tyrrell either mislaid or lost his memorandum-book in which he had taken a number of subscriptions to the *Beekeepers' Review*. He desires that all who gave him such subscription write to him, giving their names and addresses. Address E. B. Tyrrell, 214 Hammond Building., Detroit, Mich.

SOMETIMES beekeepers in California and other western States are inclined to poke fun at the "one-horse" beekeepers of the East. A great many of these Westerners will have to take off their hats to one beekeeper of the East, or more correctly of the Southeast, Mr. J. J. Wilder, of Cordele, Ga. He has over two thousand colonies in thirty-nine different apiaries, and in 1912 produced one hundred and twenty-five thousand pounds of honey.

WASHING CLOTHES IN HONEY.

WHILE visiting in Oklahoma we learned how one of the early pioneers in that State was in the habit of washing her clothes in honey. We suppose the honey was of inferior quality; but the washwoman explained that the honey would remove soiled parts and dirt equal to or better than soap. We presume, of course, that after the clothes have been soaked and washed in honey they were then rinsed in water.

DEATH OF OLIVER FOSTER.

THIS occurred March 12, as the result of a complication of stomach troubles and pneumonia, at his late home in Boulder, Col. Mr. Foster was an uncle of Mr. Wesley Foster, our Colorado correspondent. Years ago he was more of a contributor to this journal than he has been of late years; but he had a genius for inventing things; and the old volumes of *GLEANINGS* as well as the *A B C* of Bee Culture will show that he was a pioneer in the use of some ideas that are now common. We hope to have a fuller sketch of him later, written by his nephew, Mr. Wesley Foster.

A FOUL-BROOD BILL PENDING IN MINNESOTA.

A BILL creating the office of State Apiculturist, providing for instruction in beekeeping, and for the suppression of contagious diseases among bees, and appropriating money therefor to the amount of \$8000, has been introduced into the Minnesota legislature as House file No. 882, by Representative Frank Hopkins, of Renville Co., and Senate file No. 701 by Senator Murray, of Renville Co. Every beekeeper should write to his Senator and Representative at once, urging them to give the bill their support.

OUR COVER PICTURE.

OUR cover picture for this issue is appropriate in that it gives a glimpse of the outfit used by one of our California correspondents, Mr. M. H. Mendleson, for taking care of extracted honey. Notice that the honey runs by gravity from the extracting-house into the large tank, from which it is drawn later into the 60-pound square cans regularly used. A supply of these is shown stacked up in the foreground. Wherever the extracting-house may be located on a hill-side, so that advantage may be taken of the natural fall for the gravity system, the plan has much to commend it, for it is simplicity itself. The roadway should lead to the lowest point for convenience in hauling away the honey.

A NEW BEE PAPER IN CALIFORNIA.

THE *Western Honeybee* is to be the name of a new bee journal published in California by the California State Beekeepers' Association. Mr. Geo. L. Emerson, of 3497 Eagle St., Los Angeles, Cal., will be manager and probably editor. The California Beekeepers' Association was never in a more flourishing condition than it is now. There are six hundred members, and the membership continues to grow. For some time there has been felt a need for a special bee paper to present the interests of the California beekeepers, and the time now seems ripe for launching the new paper. It

will appear about April 1. GLEANINGS welcomes it into the field, and sincerely believes that it will do a large amount of good on the western coast.

HELEN KELLER, THE BLIND DEAF-MUTE.

THIS wonderful girl recently delivered an address before a thousand people. The wonder of wonders is that, with apparently no means of communicating with the outer world, she is now able to talk, write, sing, play the piano—in fact, do every thing that we all do except see and hear. Play the piano! how is it possible that one can produce strains on an instrument that she can not hear? But GLEANINGS has more than a common interest in Helen Keller. She wrote a short article for it (p. 844, 1891), when she was about eleven years old. If we are right, GLEANINGS was one of the first to publish her letters, and since that time her fame has gone around the world. Her picture appears on page 463, 1891, with much information concerning her.

LOWER FREIGHT RATES FOR HONEY IN NEW SOUTH WALES.

FREIGHT rates on honey in New South Wales have been lowered, as the honey now goes as Class A, the rate of which is lower than Class B. There is no distinction made between honey in comb, in glass, or in tin, as shown by the following clipping from the *Agricultural Gazette* for September 2:

The Chief Commissioner for Railways has approved of the charges for the conveyance of honey by rail being reduced from "B" to "A" class rate and conditions, and the necessary by-law has been forwarded for the approval of the Executive Council. This means that for the future the rates per ton will be as follows, two tons being the minimum:

Miles	50..	Rate per ton....	\$1.60
Miles	100..	Rate per ton....	2.88
Miles	150..	Rate per ton....	3.90
Miles	200..	Rate per ton....	4.84
Miles	300..	Rate per ton....	6.34
Miles	400..	Rate per ton....	7.34
Miles	500..	Rate per ton....	8.34
Miles	600..	Rate per ton....	9.34

It would seem as though there would be a difference between the rate on comb honey and on extracted, though no mention is made of it in the above. Will some one from Australia please explain?

SOLID VS. SCREEN DOORS FOR HONEY AND EXTRACTING-HOUSES.

A CORRESPONDENT in this issue recommends the use of a solid door in place of a screen door to the extracting-house. He is entirely correct. Others have called attention to the importance of the same thing. A solid door that is used for constant ingress and egress should, of course, be kept

closed. Ventilation should be secured by screens at the windows. The robbers that will cluster on the window screens will have no way of getting in; but robbers on the screen door, every time it is opened, will pounce into the building. There are some extracted-honey producers who contend there should be no bee-escapes on the window screens—that the robbers trapped within the building should be held in until the work is done, and then released when they can do no harm to any one at the close of the day. If they are professional robbers, they make it a practice to let them starve to death, because, if released, they will continue to make themselves a nuisance.

INDOOR WINTERING AT MEDINA; BROOD-REARING IN CELLARS.

WE went into winter quarters last fall with something like 600 colonies. About half of them were wintered outdoors, and the other half in cellars. So far the loss all told does not exceed one per cent.

In GLEANINGS for February 1, page 73, we reported how we moved on a sled some ten miles one of our outyards during the dead of winter, when the temperature was only 15 degrees above zero, to one of the cellars. Prior to that time we had moved in two other yards and placed them in the same cellar. All the moved lots of bees seem to have wintered equally well so far as we can discover; but we have taken out only half of them, especially those that began brood-rearing in December and January. The remarkable thing is that many of the colonies are stronger this spring than they were last fall. Ordinarily there is not much brood-rearing in the cellar; but the late moving possibly stimulated the bees to breeding earlier than usual. Well, we were a little fearful that so much brood-rearing would prove disastrous toward spring; but, so far as we can see at this time, no bad results have followed.

There was one weak nucleus of Italians last December. A fine Carniolan queen was sent in, and she was introduced to this nucleus of Italians. They began breeding almost immediately; and this spring, when we took them out, there was the original lot of Italians and a fair-sized colony of Carniolans of all ages. About four-fifths of them were of the black race, and a nicer lot of bees we never saw.

Another thing that developed was that those colonies that were bred so early began to use up their stores. They were given pie-plates of candy, as already explained, and the breeding continued. More anon.

THAT SCHEME FOR BRANDING QUEENS.

IN this issue Mr. H. Bartlett-Miller tells of a scheme for branding queens—that is to say, painting them with a brush so that they may be instantly recognized on the frames among other bees. The scheme looks like a good one, and it will be especially valuable where black bees or dark hybrids are used. Where bees are put “on the run,” the queen is pretty sure to join in the general “skedaddle,” making it almost impossible to find her. A little dab of color on her back and wings would help out very materially. With ordinary medium-strength colonies of Italians, Caucasians, or Carniolans it seems to us that it would hardly be necessary to go to the trouble of branding the queen. In the case of bees of quiet behavior it is not difficult to find the queen-mother. The ordinary practiced eye will catch her almost as soon as she comes in sight.

According to our correspondent it takes considerable time and skill to do this branding. The time consumed in doing this work in the first place apparently would about equal the extra time that might be required to find the queen without the colored markings; so we should say it is about an even stand off, with the advantage in favor of no branding. While Mr. Bartlett-Miller reports the marking with color seems to have no bad effect, yet we should be very much afraid that, in the case of valuable queens, the bees later on might ball them. And is it not true that the color would wear off in the case of a good layer?

OUR SYMPOSIUM ON EXTRACTING.

WE take pleasure in presenting in this number our symposium on the subject of extracting, in both a large and a small way; in fact, covering the whole field from the standpoint of the latest developments. It will be noticed that each of our correspondents works in a slightly different way from the others. There are some who prefer small hand machines, and others who recommend and use the large power outfits, either centrally located or portable. Mr. R. F. Holtermann has the largest extractor in the world. Of course we have not forgotten the 24-frame non-reversible machine made for Mr. Osborn, of Cuba, some twelve or fifteen years ago. But apparently this was too much of a good thing. The machine used by Mr. Holtermann is as large as is practicable to make a machine.

The advantage of a large machine over a small one is that the combs can be kept re-

volving for a longer period of time. The longer the frames can be kept on a whirl, the dryer they will become. Small machines, unless the combs are kept in them for the same length of time, would make the process of taking a given amount of extracted honey too slow. Combs that are very wet contain too much honey to go back into the hives. Some large producers believe that the residue of honey sticking to the combs just extracted is not *all* put back in the combs, but that much of it is simply wasted by the bees eating more than they require, just as their owners sometimes do on Christmas and holidays.

There was a time when many large producers seemed to prefer one large central power extracting station, and carrying the combs to and from the outyards. Apparently they are beginning to find that it is more economical to carry the extracting outfit than the combs. There are still others who have a small machine and a complete outfit at *each outyard*. But Mr. R. F. Holtermann appears to be one of the large producers who carries a big power outfit with him from yard to yard, and he has made a success of it. While a 12-frame machine is more difficult to move, yet with the right kind of planning it can be used at all the outyards together with the requisite equipments. Mr. Holtermann's article deserves careful reading, as he is working out a new proposition—that is, whether a large 12-frame power-driven outfit is more efficient carried from yard to yard than two eight-frame machines driven by one engine. This is a big question. Human labor is the most expensive factor that the beekeeper has to deal with. The larger the capacity of the outfit relatively, the less the cost of removing the honey from the combs, providing, of course, a plan has been carefully worked out, so that there will be no false motions and no waste of time on the part of several men waiting on *one man*. The secret of managing help is to plan the work so that all the men will be busy—so that each one on arrival at the yard will know just what his duty is, and a good boss will see that every man makes every minute count.

There are several other equally good articles in this number that will bear careful reading; for we believe that we never published any issue of GLEANINGS that has had more real trade secrets in it than are given in this symposium. The big men have been big enough to tell their fellow-competitors their own tricks of the trade. Of course none of them will ever lose by it, and each will be the gainer.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

THAT tramp beekeeper spreading bee-disease, p. 138, suggests the thought that it would be some help in such a case if there were some way by which a man would have to buy the right to territory before he could dump sick bees upon it.

R. F. HOLTERMANN, p. 123, you enumerate the advantages of the $\frac{5}{8}$ top-bar over one $\frac{7}{8}$ thick. That's all right for extracting; but the beginner should be told that these advantages are overbalanced by the whiter sections obtained over $\frac{7}{8}$ top-bars. [Many others have testified to the thing mentioned by Dr. Miller; namely, that sections are whiter and cleaner over a $\frac{7}{8}$ -inch top-bar than with a $\frac{5}{8}$ or $\frac{3}{4}$.

BEGINNERS who start out-apiaries with their automobiles will never know the thrills we older ones had with our horses. But they were thrills of fright and fear. The worst scrapes I ever had with bees were in connection with horses, and I always drew a long breath when well started away from an out-apiary. I never had any very bad accident, but some narrow escapes, and there was always that dread which helps to turn one's hair white.

L. C. BOUSSEAU sends design for self-spacing. Sole leather $\frac{1}{4}$ inch thick, sliced nearly through in $\frac{1}{4}$ -inch squares, to be cut entirely apart after center holes are punched. Ought to be good if bees don't gnaw them. [Dr. Miller forwarded to us specimens of the sole-leather spacers. Even if such leather were sliced so as to be $\frac{1}{4}$ inch thick it might swell out or dry up. If the latter, it might shrink down to one eighth. This would render it useless.—Ed.]

J. L. BYER, p. 141, I feel a bit shaky about insisting that 32 to 35 would be an ideal temperature in a four or five months' winter confinement of bees. I'd give something to know what it is. Please say what temperature you would prefer without any change for a five-months' pull. But I've some question whether 32 to 35 would start brood-rearing as soon as a much lower temperature. You know brood-rearing starts earlier outdoors than it does in cellar; and isn't that because it is so much colder outdoors?

E. D. TOWNSEND says of foul brood, *Review*, 45, "Once in a locality, always in that locality. One can free a hive of the disease, very probably a yard, but not a locality of any considerable area." I guess that's about right, Bro. Townsend, at least regarding the European brand. [This state-

ment of Mr. Townsend is generally true, but not always so. We have apiaries where foul brood formerly existed, but they have been free from the disease for many years. But if foul brood once gets into a set of combs it will keep cropping out from year to year in the apiary where they are used; and then the only thing to do is to melt *all* the combs and start anew on fresh foundation. That is precisely what we had to do in the yards that originally had foul brood. We have never had European foul brood in our yards, and therefore can not speak from experience.—Ed.]

APROPPOS of J. M. Munro's letter about bees changing color, p. 129, J. Kruse, *Centralblatt*, 343, gives a circumstantial account of several cases of changing to darker color, and *vice versa*, caused by change of location and pasturage. Buckwheat and heather darken the color. This change occurred during the life of the same queen, and there was also a change in the character of the bees! [We arise to inquire if this is true. Does the color of the honey affect the color of the bees? We are frank to say that it does look reasonable. We admit that the kind of honey sometimes affects the temper of the bees, or rather, we should say, the manner in which the honey is secreted from the nectaries of the flowers. A plant like buckwheat that secretes honey only during the early hours, and then stops, will make bees crosser than the white clover that secretes honey all day.—Ed.]

DR. ZANDER says that at 68 degrees Fahr. a man requires 3 1-3 times as much air as a lot of frogs weighing as much as the man, and a bunch of bees of the same weight requires 74 times as much air as the man! Commenting on this, Franz Richter figures that at 68 degrees a colony weighing 13 pounds requires hourly the enormous quantity of half a cubic meter of air, or 17.6 cubic feet!—*Bienenvater*, 61. I thought I had a pretty high conception of the importance of air for bees, but I'll have to run it up another peg. [You seem to think a cubic half meter of air is a large quantity. To us it seems rather small. A good deal will depend, however, on whether the bees are in a semi-quiet condition in the cellar or outdoors. In the former place they would not require, at a mere guess, more than a fourth the air that they would when they are active in summer.

We are quite prepared to believe that a man would require three times as much air as a lot of frogs weighing the same.—Ed.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

It is to be hoped that the ruling relative to shipping beeswax in boxes instead of bags will never be in force in this country, as it would be a lot of bother for nothing. I have shipped many hundreds of pounds of wax in bags, and never once had the first complaint. But I always double the sacks, and take no chances. Being able to buy large sacks at about 3 cts. each, the package is very cheap, and always handy to use. It seems a pity that the carelessness of a few will often make trouble for a great many other people as well as themselves.

* * *

HOW BEES ARE WINTERING.

We are getting all our "winter" at the tail end of the season here in Ontario. We had a mild January; but February and March, to date (7th), has been steadily cold with high winds. There has been no snow here in York Co. to speak of; but north 100 miles at the Lovering yard it is mountain-high. Hives have been exposed all winter to the cold; and often have we wished for snow to shelter them somewhat. Reports received during the past two weeks are not as good as early in February, and present prospects point to heavy losses outdoors wherever bees were not fed well last fall. Natural stores do not seem to be of good quality, and much granulation is reported.

* * *

In reviewing Mr. Sladen's splendid work on the bumblebee, p. 73, the editor says that "the sting of the bumblebee is not very severe." I don't know about that. It all depends on the size of the *bee* doing the stinging and the size of the *fellow* getting stung. My earliest recollection of bumblebees is of having been told by a chap older than myself that "queen bumblebees can not sting." Shortly after getting this bit of knowledge in my cranium, I sauntered out into a patch of sunflowers where numerous members of the bumblebee family were disporting themselves; and after a careful look a "queen" was found on one of the blossoms. I was only five years old at the time; and whether that has any thing to do with my recollection of the affair or not in so far as the size of the *bee* is concerned I am not prepared to say. Any way, my memory says that this particular "queen" was about an inch long; and when I confidently grasped her in my hand the sting I received felt much longer than an inch, and the small drop of blood that oozed from the puncture

gave me such a scare that the pain, coupled with the sight of blood, made me exceedingly emotional for the time being. Since then I have learned that, while the queen can sting, the drones—at least those of some species—can not do so. Especially is this so of the chaps that are often found under trees on hot days; and in schoolday times we used to call them "shade bees," and catch the poor fellows with impunity.

* * *

Mr. Pettit's footnote to my article on page 113, Feb. 15, requires some slight explanation. In the first place, I cheerfully admit that I am to blame for not being more careful in writing copy for the bee journals, as I never rewrite any thing. That explains why I am made to say, "during the past season," when I certainly meant to say, "during the past few seasons." Aside from that I have no apologies to make, as I have simply stated facts as given to me. What my own opinion is, that is another matter; but Mr. Pettit knows, or should know, my attitude, as *actions* speak louder than words. I have nothing but the best wishes toward all educational movements, let it be in beekeeping or any thing else; but I do not think it is wise to publish in the daily press reports of big honey yields and profits, when often gross returns are given instead of net receipts.

As to doing "government work," there are other methods of getting information aside from being on the civil service; and as to the term "producers," all will understand that I had in view the people who mainly depend upon beekeeping for a living.

By the term "boom" I rather had in mind the great activity in the bee business, the attendant high prices of bees, etc., instead of the high price of honey as Mr. Pettit seems to think was the case. And yet I am not at all dissatisfied with the advance made in honey during the past few years; for although honey has not increased as much as some food products, yet no one will dispute that the raise has been substantial. Only seven years ago, if I remember correctly, I sold my first large amount of honey at 7¼ cts. delivered, and was very glad to get that price. This year I sold very readily honey no better, at fully a half more than that figure. Honey is not too high in price—many honestly think it is not high enough; but, all the same, I am very thankful that prices are as good as they are—things might be worse.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Thousands of colonies have been shipped to the alfalfa fields of Nevada, Utah, and Idaho during the past two years, and others are still going. A good old-fashioned honey crop in California would have a strong influence in checking shipments.

* * *

The good rains of which I spoke in the last issue stopped abruptly, and we are again anxious for weeping skies, for our season for rains is growing shorter day by day, with yet far too small a rainfall to hold the honey-plants through the blooming period. The sage that escaped the frost is doing finely, and has an exceptionally healthy color and growth. The oranges will be blooming in a short time in profusion; so if we get plenty of rain to aid the sage, who knows but we may yet die rich?

* * *

The California State Beekeepers' Association will, in the future, be known as the Consolidated Honey-producers of California. When our foul-brood law was introduced in the State legislature, one of the features of the bill was that it placed the appointment of the inspectors largely in the hands of the association. The law-makers, upon investigation, found that there was no legal organization on record known as the California State Beekeepers' Association. The situation was grasped quickly by the officers of the association, and a meeting called to organize under the laws of the State to give a legal standing as well as a legal name. There had previously been an organization known as the California State Beekeepers' Association which was officially dead, but the name could not be used again in an official way, so the name stated above was chosen.

* * *

I recently had the pleasure of entertaining Mr. C. C. Matthews, of Idaho, and Mr. M. H. Mendleson, of Ventura. Mr. Matthews is in California buying bees to ship to Idaho. He is a beekeeper with much experience, and will doubtless succeed. Mr. Mendleson needs no introduction from me; but I must say I have rarely enjoyed a visit from any one more than this one. With so many years of experience among the bees, and such a large producer, he is a landmark in California beeedom. I also had the pleasure of signing a petition for a son of Mr. M. Seager, who is out for the office of County Inspector, and has the solid backing of our county association. The elder Mr.

Seager is a beekeeper of long experience, having been in the bee business in California for the past 37 years, and a good friend of the writer.

* * *

Utah is now wrestling with a foul-brood law that makes inspection at the State line necessary on all shipments of bees entering the State. We in California are now trying to get a law to overcome the evils of county ordinances of an uncertain nature, and make it possible for the clean and careful beekeeper to transport his bees from one part of the State to another, and make it impossible for an inspector such as we have had in San Bernardino County to hold the office for ten years over the protest of the beekeepers. I believe with Editor Root (p. 139, March 1) that a federal law should be enacted at once; not only, as he says, to stop the unprincipled tramp beekeeper from spreading disease, but to have a condition of certainty in law that will give clean bees a clean bill of health for shipment from one State to another, avoiding the necessity of State quarantine laws that seek to correct an evil and make a worse one.

* * *

Iowa State convention recommended the amendment of their present foul-brood law to prevent the shipment of bees into that State. I thought California had all of the insane notions there were on this subject; but here comes Iowa with a notion as bad as any we can produce. It is to be hoped our legislators will not allow the beekeepers to persuade them to repeal the inter-state commerce law without giving the national Congress at least due notice of their intentions. I doubt very much if the ruling of our California Agricultural Commission would prevent the shipment of bees from Utah to this State, if a test case were made in the United States Courts, unless it could be shown that the bees or fixtures actually contained evidence that the alfalfa weevil was being transported to this State. I do not believe any court would hold that the mere fact that there was danger of the weevil being brought in would be sufficient to stop a shipment of bees, or any thing else for that matter. There are few ships, of the many that land at our harbors daily, from which there is not danger of disease being contracted; yet the ships come and go, being subject to quarantine regulations, to be sure, but not prohibited from landing if no contagion develops within a reasonable time.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

SWEET AND SOUR SOIL.

Acid soil is sour, and will not grow clovers well. Acid soil will turn litmus paper from blue to red. If you have an acid mouth your breath will do the same to the blue litmus paper. If you have an acid mouth you will soon be going to the dentist unless you sweeten your mouth out with a toothbrush and tooth-powder. A clean tooth never decays. Lime sweetens the soil and allows the clovers to grow. And what could be more natural than for a sweet soil to grow plants that will produce abundant nectar? Emerson said there are many sweets in the soil if we but knew how to come at them. He did not tell us, but we now know how to come at them by liming the soil and planting the clovers. The bees will collect the sweets for us. A land flowing with milk and honey will be found where limestone sticks out of the hillsides. The clovers grow, the cattle fatten, milk is abundant, the locusts thrive on the clover, and the wild bees collect the wild nectar for the diet of any John the Baptist who cares for a diet of locusts and wild honey.

* * *

GLASS SUPER COVERS.

On page 52, Jan. 15, you spoke of Mr. Babberger using panes of glass for honey-boards. Will you be so kind as to give me a little information on the subject? I also use the Danzenbaker hive. Does he use panes of glass 16 x 20 the same size as the hive? and does he use single or double strength glass? Is it not likely to get broken in prying it up, being stuck with propolis? Does he let it stay on there all the year? Does he use a super cover of wood in connection with it?

North Carolina.

S. D. M.

Mr. Babberger uses glass 16 x 20, or very close to that. They are the size of the outside of the hive. He uses single-strength glass, and says he has but little trouble with breakage. I believe he told me that he broke, on the average, two glasses each season.

Mr. Babberger says that bees should not be molested when the propolis sticks. I should judge from his remarks that he does not open his hives except in warm weather. He tells me that he can give his bees a very fair examination without removing the glass. The glass is used as a honey-board over the supers in summer, and nothing but the cover is used with it.

* * *

WEIGHT OF HONEY IN 4 x 5 SECTIONS.

You speak of Mr. Hill and Mr. Babberger using 4 x 5 plain sections. How do these men get the 4 x 5 x 1 1/2 sections to come under your "fancy" and No. 1 grades? As I understand it, these grades must weigh 13 1/2 oz. I am using the 4 x 5 x 1 1/8 sections,

and can't get the very best of them to go over 13 oz. Do these men use 4 x 5 x 1 1/8 or the 4 x 5 x 1 1/2? I am thinking of changing to the 1 1/2. What will the 4 x 5 x 1 1/2 weigh when well filled? I want a plain section that will weigh a pound when well filled. Will the 4 x 5 x 1 1/2 do this?

Missouri.

T. H. B.

Neither Mr. Hill nor Mr. Babberger grades honey according to the Colorado rules. The Colorado rules are made for the 4 1/4 x 4 1/4 x 1 7/8-inch section. But I do not understand why you can not get heavier honey than an average of 11 1/2 to 12 oz. in 4 x 5 x 1 3/8 sections. This is the size used by Mr. Babberger, and I think Mr. Hill's are the same, although I am not certain.

Leaving the bees a bee-space on each side of the beeway section, and allowing for the bee-space provided by the fence separator used in the Danzenbaker super, I find that the 4 x 5 x 1 3/8 section has 27.5 cubic inches of available space for the building of comb, while the 4 1/4 x 4 1/4 x 1 7/8-inch section has only 27.09—a difference in favor of the tall section of about two-fifths of a cubic inch. I am satisfied that Mr. Hill has many sections weighing from 13 to 15 ounces. Several years ago I produced quite a little honey in 4 1/4 x 4 1/4 x 1 1/2 plain sections, using fences, and had little trouble in getting them to weigh 13 to 14 ounces, though I could not get the bees to put a pound in them.

Do you put in full starters, filling the box full with a top and bottom starter? Perhaps you had an unfavorable flow this last season; or you may put on too many supers, and make the bees slight their work.

I have had no experience with the 4x5x1 1/2 section; but I know some Colorado beekeepers who have used 4 x 5 x 1 5/8, and they get comb honey averaging a pound, and some sections will weigh more than that. I doubt whether you can get the average comb built in a 4 x 5 x 1 1/2 to weigh a pound.

Why do you not use a standard section? By removing the super-follower, using separators between each row of sections, having a top starter of two to three inches, and a bottom starter of 5/8 inch, you can get combs to weigh one pound each. But that space left when the follower is removed must be equalized as nearly as possible between all the rows of sections. The way one Colorado beekeeper (Walter Martin) does is to shake the super from side to side lightly, thus leaving the spacing about right. When the bees have begun work, any uneven spacing may be adjusted, and then the bees will soon glue it so that it will stay.

Conversations with Doolittle

At Borodino, New York.

BEES AS ESCORTS FOR QUEENS IN MAILING.

I expect to rear queens for sale this coming season. Please tell us how many bees to put in with any queen as escorts. What should be their age?

In mailing queens it is important to use the right number of bees of the proper age. During the summer months, and where the queens are to go no further than the domains of the United States or Canada, this ordinary small mailing-cage answers very well, and the proper number of bees to use is from eight to twelve, according to the temperature which is likely to be met while they are in the mail. For very hot weather, and with the destination to be in the middle and southern States, I have found that eight bees do best during the last half of June and the months of July and August, while for the northern part of the United States and Canada I generally use ten for July and August, and twelve for the other parts of the mailing season.

Some years ago I went through a series of experiments to ascertain these things, some of which covered a period of nearly four months. I prepared and provisioned the cages in different ways, and used different numbers of bees, using queens which I wished to supersede, not on account of their age, but on account of their being mismated. Being thus prepared, the same as were others which were mailed, these were put in a dark place in my shop, some in the lower story, others in the upper story, where it was very warm the most of the time; and three or four times during each week these cages were either thrown about the room or left in an old sack made of leather, and the sack tossed about, something after the manner in which I had seen the mails thrown off fast-running trains. Without specifying further as to details, in this way I arrived at what I considered the different ways best suited for a successful termination; and although I have tried nearly all of the devices brought before the public since then, few, if any, have proved better than what I settled on then.

But for either spring or fall I do not believe that the best results can be obtained by using these small cages. For these reasons, and for all places outside of the United States and Canada, a larger cage should be used, one having at least twice the capacity. With this larger capacity I use from twelve to twenty bees in accord with the expected temperature and the distance to be traveled. Then for all places outside of North America, a still larger and differently constructed cage should be used, one

which will allow the bees to collect in a comparatively closed apartment when passing through a low temperature; but that where extreme heat is encountered, will allow them to have access to a larger and well-ventilated compartment. With cages constructed after this fashion, and with from twenty to thirty bees, I succeeded in getting three out of five queens alive and in good shape clear to Western Australia, this requiring a period of thirty-nine days.

As to the age of the bees which are to accompany queens while in transit, the younger the bees are which have had a cleansing flight the better. Young bees which have never flown to void the pollen excrement which accumulates in their intestines through their larval and pupa state, are liable to soil themselves, the queen, the food, and the cages, where more than two or three days' time must be consumed during any journey through the mails. And old worn-out bees are little if any better.

Just how to tell which are the old and which are the young bees is a matter that often puzzles very many. I studied many a long week, month, and even years, in this matter, and I conducted different experiments along this line, till finally, in watching the bees carefully, after only just enough smoke had been used to quiet them properly, I found that, as a rule, bees which were from six to ten days old, the same being slim in appearance, were the ones which would stick their heads in the cells of honey surrounding the brood, and begin to fill with this honey. And such are the bees which I have used for nearly thirty years, with good success. And, what is in our favor, is that, when in this position, these bees are the most easily picked from the combs, as the wings stand out inviting us to take hold of them, and thereby carry them to the cage in the manner best suited for their entering the cage, and with an almost positive insurance against being stung.

Some queen-breeders say that we should never put in a bee that has stung us, as it will soon die, and is quite likely to get stuck fast in the entrance to the food-chamber. I used to think so myself; but finding that it was not the easiest job to get a bee out again which had left its sting in my finger when closing the entrance to the cage, I wrote to a party in Texas, to which such a cage was going, to inform me on arrival if there were any dead bees in the cage. In due time he replied that every bee was alive, and "smart as a cricket."

General Correspondence

LABOR-SAVING PLANS IN LARGE OUT-APIARIES

Different Problems in Different Localities

BY R. M. SPENCER

Locality has much to do with the methods of handling bees, either on a large or small scale. Where I am located the winter problem is nothing compared with that of cold climates. Here a nucleus of three frames of brood and bees will winter in good shape provided they have plenty of honey for stores. In the East the main problem in spring is to get the bees to build up in time for the flow; while here the main problem is not to let them build up too fast and swarm before the flow starts.

In this locality bees begin to breed about Jan. 15, and have a light honey-flow until about May 15, when the main flow starts. It is easy to see then that the breeding season is very long. This compels us to use a large hive. Ten frames is what I use, and tier them up three stories high, allowing the queen to breed in all three bodies if she desires. This long breeding season makes a race of bees such as Italians more suitable than any swarming races like Carniolans.

Our work here generally begins about Jan. 1, when we go to all the yards, close the entrances down to about two inches, and take up all dead colonies to prevent the combs becoming moth-eaten. About Feb. 20 we go over all hives, remove supers and surplus honey, stacking the same up in the yard. During March we build up the weaker colonies by taking brood from the stronger ones.

WORKING SO RAPIDLY THAT ROBBERS CAN NOT KEEP UP.

We use a method of preventing robbing during this early spring work by going over the hives so fast that robbers can not get a chance. Each man has his duty to do. Say a crew of five men were going through a yard of 250 colonies in a day. The first man's duty is to take off the lids. No. 2 smokes the bees. No. 3 glances into the hive, calls out the number of frames of brood; or, if a frame is wanted, he calls for it. No. 4 brings the frame and puts it in a vacant space and returns the empty comb to a box of combs which is always kept covered. No. 5 then replaces the cover and sees that it is secure from robbers.

By this method we go over the hives so fast that robbers do not stand a show. We sometimes see them trying to get under the lids, five hives or more behind where we are

working. If they become bad we paint the cracks with fresh white paint, and they will not try to get in, as the bees will not alight on fresh paint. We also jump over to the other side of a yard after getting over one row, and this also throws them off their track.

We always aim to keep not too many bees in a yard, but yards close together. We figure that, if we have 2000 colonies in four yards of 500 each, in case of disease we have to fight it in 500 colonies, while if we have eight yards of 250 each we have only 250 to look after. Again, in poor years 500 will not make a living, but 250 will. On the other hand, large yards cost less to operate, and produce large crops in good years. We try to locate all our yards in well-sheltered places away from winds.

There is no question in my mind but that in many cases queens have been condemned for poor qualities when the main cause was drifting of bees. In a large yard of several hundred colonies, those in the center of the yard will always be in poor condition while the outside colonies will be strong. I have often noticed this in my yards where the flow in spring began on oranges to the west. The west side of these yards would be very strong, while later on, when the flow from other sources began in the east, the colonies on the east side would build up quickly, while those on the west would become weaker. The way to prevent this is to keep the hives in groups, or by some well-marked location. About all the locations in California are now occupied except some that are back in the mountains where roads must be built in order to reach them. Many localities are already becoming overcrowded.

One of the main problems here is to secure labor to handle the bees. It is hard to get help who will go back into these canyons and live and handle the bees.

All our hives are three-story, and all the honey is sealed and thoroughly ripened before extracting. We use the usual methods of extracting, running the honey into tanks in order to clarify it.

GALVANIZED TUBS FOR UNCAPPING-CANS.

We find the best uncapping-boxes for our use to be tubs with a one-inch opening at one side on the bottom. These are set over a trough, and the honey is allowed to drip into the trough and run into tanks. The advantage of these tubs is that we can use one to-day and let it drip clean until to-morrow, when we screw in the plug and haul the whole thing home, and melt the

cappings there. All we need is a large supply of tubs to handle the cappings as fast as filled.

Nordhoff, Cal.

SPRAYING FRUIT-TREES IN BLOOM

Advice in "Better Fruit" in Regard to it

BY J. A. GREEN

One of the most subtle attacks on bee-keeping interests that has ever come to my notice is contained in articles in *Better Fruit*, a magazine published at Hood River, Oregon. *Better Fruit* is a high-class magazine, well printed, superbly illustrated, and occupies a very high place among publications devoted to the fruit industry. In the January number are several articles by W. H. Volek, Horticultural Commissioner of Santa Cruz County, California, who is listed as one of the associate editors. In one of these, after reciting the damage done in his district by various leaf and fruit eating insects which begin their work very early, he says, "These foliage and flower-devouring insects are all controllable with arsenicals provided the spraying is properly done in due time. Owing to the very early attacks of tussock caterpillars, canker-worms, and leaf-folders, the first spraying should not be delayed until the blossoms have all fallen, but applied while the trees are in bloom. The period from full bloom to the time when two-thirds of the blossoms have fallen appears to be the most practical timing. Spraying with good arsenicals will cause no injury to the blossoms." Later, in the same article he says, "Apply the first spraying when the trees are in bloom, full bloom to the time when two-thirds of the blossoms have fallen."

In another article, speaking of a special brand of arsenate of lead, he says, "It may also be used on apples and pears in the Coast districts if applied very early (while the trees are in bloom), or if combined." Again, "Acid arsenate of lead may be used . . . if applied before the trees have gone out of bloom; but any later sprayings will be dangerous." Once more, "The first application for canker-worms, codling moth, etc., had best be applied before all the blossoms have fallen;" and, finally, "In the Coast districts the earliest application (before all the blossoms have fallen) may be made."

The persistent reiteration of the same idea shows a deliberate purpose to induce as many as possible to follow his teaching, though he cleverly avoids giving any reason for it, further than that the leaf and bud

eating worms that he mentions begin their attacks very early, before the blossoms are open. The position of the man, and his evident familiarity with all the minutiae of spraying, will tend to lead many to follow his advice without analyzing it or suspecting any ulterior motive.

Now the facts are that, for the purpose of poisoning the tussock caterpillar, canker-worm, or any other of the leaf or bud eating insects that begin their work early in the season, there could be no possible advantage in having the tree in bloom when the spraying is done. A spray applied four or five days earlier, before the blossoms open, would be even more effective in controlling them, if time is any object. But unless these pests were unusually bad, there could be no great harm in waiting four or five days later, until the petals of the blossoms have dropped, which is the proper time to spray for the codling moth. For the control of the codling moth, a more effective job of spraying can be done after the petals have dropped and the stamens have withered and separated, so that the calyx cup can be more easily filled with poison. Also this spray will be equally effective in controlling the later attacks of all leaf, bud, or fruit eating insects.

The statement that spraying will cause no injury to the blossoms does not agree with the experience of many practical orchardists, nor with the teachings of nearly all the authorities. Most spraying is done nowadays with power-sprayers; and to do effective work a pressure of 200 lbs. should be maintained. I have seen even leaves and apples torn from the trees by such a spray, and it is only reasonable to suppose that, when it is driven upon the delicate organs of the blossoms, it will more or less damage them and prevent the proper performance of their functions, aside from the corrosive action of the spray or the hindrance to pollenization by the thorough wetting.

I have written to the publishers of *Better Fruit*, and hope that something may be done to counteract the influence of these articles. I shall write to several others of the associate editors, with whom I am acquainted, to enlist their influence if possible against this revival of an error that had nearly died out among fruit-growers, or at least the better-informed ones. Bee-keepers should post themselves on the principles that govern spraying, so that they may be better prepared to overcome the evils that the ignorance or prejudices of fruit-growers may bring upon them.

Grand Junction, Colo.

[We sincerely hope that our correspondent's efforts may succeed, for it is to be regretted that a horticultural magazine should come out with such a statement right in the face of conclusive evidence to the contrary that is being sent out by so many of our experiment stations. Here is another communication along the same line.—Ed.]

SPRAYING TREES IN BLOOM

BY H. F. WILSON

Assistant Entomologist, Oregon Agricultural College, Corvallis, Oregon.

Mr. W. H. Volek, Horticultural Commissioner, Santa Cruz County, Watsonville, California, in the January number of *Better Fruit*, under the heading of "Caterpillars, Codling Moth, Aphids," pages 16 and 17, makes the following statements: (Quoted above.—Ed.)

Note that he states that the time mentioned *appears* to be the best. This recommendation, which is undoubtedly given on reliable data and experiments, is a very dangerous one for both the beekeeper and the horticulturist. Certainly such a practice can not help causing the destruction of insects which feed upon the nectar of the blossoms, and, climbing about over them in search of it, aid in cross-pollination. In localities where it is followed, the honeybees will be destroyed; and one of our local beekeepers suffered such loss from the spraying of a single orchard that he was compelled to move to an entirely different locality.

It is a common recommendation of this station to suggest bees for the orchard and farm, both for the value received from the cross-fertilization of fruits and the surplus honey secured.

In view of this recommendation I will state that in Oregon we have the tussock moth, canker-worm, and several caterpillars which cause more or less damage to the fruit; but in only one instance have they caused enough damage to make it necessary to consider methods of control other than those now in use.

In localities where it becomes necessary to combat these early-feeding caterpillars, the spray should be applied before the blossom-buds open. At that time the young caterpillars will be feeding, and should be more easily destroyed than a week or ten days later.

There may be some opposition to this extra application on account of the cost; but surely the value of the cross-fertilized fruit over the self-fertilized will be more than the cost of spraying.

Just how much we can depend upon the wind and air currents for distributing pollen is hard to say; but several investigators have carried on experiments which tend to show that not as much pollen is distributed in this way as one would expect.

In conclusion I would suggest that the fruit-growers of every State be careful about spraying when the trees are in bloom; and such a practice should be resorted to only as the last and final means of insuring a crop of perfect apples.

A COLLAPSIBLE EXTRACTING-HOUSE AT EACH YARD

Hauling Combs Home to Extract Keeps the Bees Confined to One Story too Long

BY LEON C. WHEELER

Personally I should not like the plan of working outyards and carrying the combs, etc., back and forth every trip. I find that, if not absolutely necessary, a honey-house at each yard is at least extremely handy; and when one can have good portable houses at a cost of \$25.00 to \$40.00 each I believe that they are an economy. It is almost impossible to estimate accurately the amount of combs one will need at an outyard; but he can very easily have a supply of them in the honey-house at the yard, and can draw on them at will.

A light spring wagon will take the extractor, capping-melter, gravity separator, etc., to the yard, and a few cream-cans make excellent receptacles for carrying back the honey. If one has a permanent stand arranged at each honey-house it is a short job to set up the extractor and begin operations. Many of these combs must be put right back on the hive, and a lot of time is saved by not having to take them home and then back again another day. Then, too, the combs are on the hive quicker, and, consequently, the bees are not left so long in the cramped quarters of the single hive-body.

Large full combs of honey are not the easiest thing in the world to haul over rough country roads without breaking them; and as the most of this work comes at the close of the clover flow, and before the beginning of the buckwheat flow, bees are inclined to rob; and each hive, as one loads it, has to be carefully covered; and still, in spite of all one's care, he finds before he gets through loading that there is a swarm of eager excited bees around the load. These bees may not do any harm to the man who is fortunate enough to own an auto; but we poor fellows who are compelled to drive

a horse don't enjoy hitching up in a swarm of bees.

I'd much rather have that honey all extracted and put up in good tight tin cans; for then when I get through I can throw it on the wagon, hitch up without any bees to molest me, and hike for home as fast as the horse cares to go—no trouble about breaking combs.

Then, too, when I am working among the bees before extracting time I often find it to my advantage to take out certain combs of honey from a hive, and it is very handy to have an extracting-house in which to store these.

In loading the extractor on the wagon I set it flat on the bottom of the wagon, and fasten it there with two or three screws, and the pockets are tied to keep them from rattling; and when it is fixed this way there is no trouble about driving as fast as you want to. My extracting-house is built in six pieces—two sides, two ends, one floor, and one roof piece. These are bolted together at the yard, and strips nailed on over the corners to cover up the cracks which might otherwise let in some bees where the building is joined together. There is just one window which faces the yard; and this is fitted with escapes. There are two doors, one entering the yard and the other facing out, which admits of driving a team on the opposite side of the house from the bees to load. These doors are both fitted with foot latches—a very handy device which allows one to open the door with the foot instead of having to set down the hive, or whatever he is carrying, in order to open it. I should consider it a useless expense to fit out each yard with extractors, etc., as they can be easily carried along.

Barryton, Mich.

THE JEFFERSON AND ST. LAWRENCE COUNTY CONVENTION

BY R. F. HOLTERMANN

The two-days' convention held at Ogdensburg, N. Y., Feb. 20 and 21 did not lack in enthusiasm, and there were a goodly number of extensive beekeepers present. I shall make no attempt to report the convention generally, but simply record a few points which impressed me.

F. C. Hutchins, Massena Springs, upon the subject of "The Management of Outapiaries," said that his home apiary consists of 300 colonies, which he looks after himself, getting the help of two or three boys in extracting time. His experience is that if bees winter well they will spring

well. He wants good queens, not more than two years old. On account of European foul brood he gives Italians the preference, although so far he has found no disease among his bees.

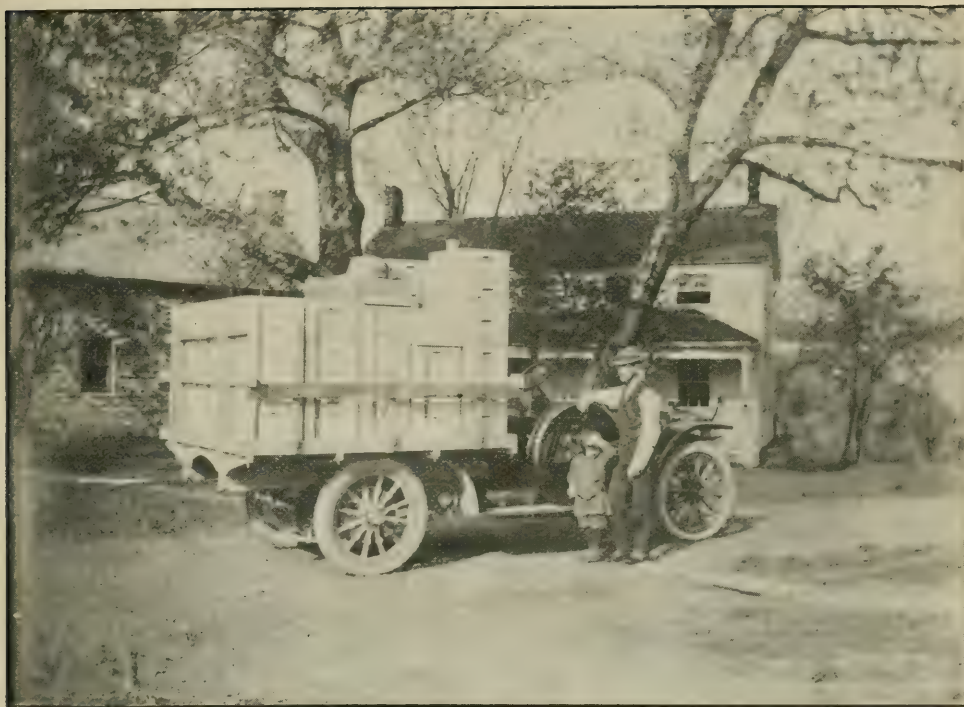
Mr. Hutchins advocated equalizing colonies by changing hives, putting strong colonies in the place of weak ones, and weak in the place of strong when honey is coming in and the bees are flying. He has also built up weak colonies by placing them over strong ones with a wire cloth between the two colonies. He has had some swarms when producing extracted honey, but not many. Swarming is kept down by means of shade, large entrances, and plenty of room. Where there are 200 or 300 colonies in an apiary he recommends that some one be placed in charge all the time. They can have any swarms that issue, and enough work can be found to keep the attendant out of mischief. Mr. Hutchins also recommends a complete extracting and other necessary outfit for each apiary. He feels sure a good honey crop can be secured in an apiary with several hundred colonies if the bees are strong at the beginning of the honey-flow.

The question of breaking down queen-cells to prevent swarming came up. I stated that, when breaking down queen-cells that are the result of the swarming impulse, I make a point of removing all the royal jelly, reasoning that, if any of it is left, there will be a greater chance of the bees starting some more cells with the intention of swarming later. I do not shake a colony simply because it builds cells for swarming, for often the swarming impulse does not continue when the cells are broken down. Sometimes, however, it does continue, and I find instances where it would have been wiser to shake the bees instead of thwarting them week after week. However, on the whole I have gained more than I have lost by delaying or not adopting the "shake system."

Mr. T. Davis, Ogdensburg, gave a method which he had adopted, of destroying capped cells—a method which Geo. B. Howe, Black River, had also practiced for many years. This method consists in tearing the capped cells open at the side and destroying the embryo queen. If the cells are destroyed in this way the bees think their own queen destroyed them, and they destroy any cells the beekeeper might miss in the hive. Bees do not destroy the remaining cells unless the cells found are destroyed as described. Mr. Howe stated he had been following this plan for fourteen years with entire success.

Brantford, Canada.

To be continued.



Woodward's auto truck loaded with 105 supers and combs, ready for a trip to one of the outyards.

AUTO TRUCK FOR MIGRATORY BEEKEEPING

D. L. WOODWARD

Last season was my first experience with an auto, and I have enjoyed it very much, although I have found it quite expensive on account of using pneumatic tires and a high-powered car. My machine is a foreign Fiat, 45 horse power and 130-inch wheel base. Most owners of automobiles claim big mileage for their cars; but all I have ever been able to get out of my car is six miles to the gallon of gasoline. I bought it second-hand, buying just the chassis. After buying it I had a detachable touring body built for it. Then I built a delivery body, also detachable, and a truck platform with stakes, as shown in the picture.

The platform is 70 inches wide, 96 long, and is built of oak and ash, a very strong construction, but heavier than necessary.

Let me say right here to prospective buyers of auto trucks that I do not consider any touring car suitable for a truck. In the first place, it is geared too high; and in the second place the gears are not heavy enough to bear the strain that a truck must stand. I have had the misfortune to strip my differential gears twice during the season, so I know whereof I speak. I do not believe

there is any pleasure-car built with heavier transmission and gears than the Fiat.

I would not advise any one to try to get along without horses in addition to the auto, as there are times when the horses come in very handy, especially in the spring and fall.

For six weeks last spring I was tied up on account of the muddy condition of the roads. If one lives on a State road, that disagreeable feature is done away with. I believe that an auto truck is a great convenience and a great saver of time; but if one can not afford to keep a pair of horses also, I would choose the horses for the heavy work, and keep a light car which would be inexpensive to maintain, for light work, such as marketing honey and running to the outyards.

The ordinary beekeeper would have very little use for a truck unless he practiced migratory beekeeping as I do.

I run two outyards—one five and the other ten miles from my home yard. I take all my honey home to extract, and carry the bees home to winter them. Then about July 20 I move them all on the Helderberg Mountains for buckwheat honey, a distance of ten miles. Last spring my bees were short



FIG. 1.—One of R. F. Holtermann's apiaries of twelve-frame hives.

of stores, and so I moved about half of them six miles from home into a fruit belt for fruit bloom. After fruit bloom I moved them to another location where I could get a large quantity of wild-raspberry honey. In this way they all got enough honey without feeding to carry them through and to keep up brood-rearing.

By means of the auto the moving is done quickly and easily, as I have a full equipment for doing all this kind of work. We usually close up ninety colonies the night before; and the next day, after I haul a load, my man stays at the yard to open the hives, and is generally waiting for me when I return with the next load. I find that it takes me just 45 minutes to cover the twelve miles, including loading and unloading, carrying thirty colonies to the load, fifteen to each floor. I have a skeleton floor that I use in moving bees. It is 18 inches above the platform, and is held up by the stakes. On the rear stakes is a cross-board with notches cut in for the floor boards to fit in.

I also find the auto a great convenience in selling honey at retail, as I live twelve miles from Albany, the nearest market. I have sold in three hours, from my auto on the public market, as much as 103 five-

pound pails of honey besides that which was put up in pint jars and in five, six, and twelve ounce bottles.

It is certainly a pretty sight to see the auto loaded with seven or eight hundred pounds of honey in bottles, and in my special red and gold lithographed pails; and I generally have a good-sized crowd of admirers. I get 12 cents a pound in five-pounds pails; 10 cents for the five and six ounce bottles; 25 cents for the pint jars, and 20 cents for the twelve-ounce bottles. At those prices there is money in bees. Beekeeping is my sole occupation; and from 300 colonies I make a good living and save some besides.

Delmar, N. Y.

THE TWELVE-FRAME POWER EXTRACTOR

BY R. F. HOLTERMANN

Some of my friends claim that I am too conservative. On the other hand, there are those who state that I risk too much; and the reason they give for this statement is that they can point to certain fixtures or implements about the bee-houses which I am not using. These accusations prove to *my*

satisfaction that I am pursuing a fairly moderate course between the two extremes. Be that as it may, it was quite a wrench for me when I decided to leave the hand-turned extractor and venture on what was to me the uncertain sea of a power-extractor outfit.

When I state that, with a six-frame reversible extractor turned by hand, we have been able to extract 8500 lbs. of honey in a day, some will, perhaps, better understand my hesitation. However, after weighing the evidence available, and meditating upon the pros and cons, actual and perhaps imaginary, the plunge was finally made, and the securing of an outfit decided on.

The next thing was to decide upon the size of the machine. An eight-frame extractor was the largest available; and as we had already used a six-frame by hand, this did not seem like difference enough. The manufacturers could give me no help—in fact, their advice rather tended to the purchase of two six-frame machines rather than one twelve-frame. An arrangement was made for a twelve-frame machine, and I ordered a pump attached. I believe I was the first one to order an extractor with a honey-pump attached (now, do not all speak up at once, saying that I was the last).

As to the engine, a few dollars looked to

me pretty serious—a few pounds of added weight, a clog on the whole season's operations; so a $1\frac{3}{4}$ -horse-power engine was decided on. This machine extracted a good crop of honey for the season of 1912; but I decided that there was a slight delay in speeding up the large reel with a capacity of twelve Langstroth frames; and two of these delays with every set of combs made considerable lost time in a day; consequently a $3\frac{1}{2}$ -horse-power engine has been bought to replace the first purchased.

The extractor which I ordered was completed and ready for inspection about July 1, 1911. A visit of inspection was made, and every thing appeared all right. Blocks of wood were placed in the comb-baskets as a substitute for comb. Delay in transit resulted, in that the last day of extracting I received notice that the extractor had arrived at my nearest custom-house station. It was, therefore, too late to test the machine during the season of 1911.

During the winter of 1911 I had 18 galvanized iron tanks built for storing honey. They had tight covers, were 6 feet high and 3 in diameter. Each tank has a capacity of 3000 to 3300 lbs. The best and safest honey-gate I could find was put on them, and a strong stand about 14 inches high was built in each apiary, upon which to set the



FIG. 2.—The twelve-frame extractor, engine, and tanks, loaded on a wagon.



FIG. 3.—Two of Mr. Holtermann's helpers removing honey. One holds the frame, and the other uses a brush in each hand.

tank. My object in having these large tanks was to do away with previous loss of time in changing the filling from one small tank to another or from one barrel to another—to strain the coarsest foreign substances, such as wax, out of the honey, and do the rest of the straining by gravitation, skimming the honey when the separation had taken place. For filling, also, a large tank, where one can fill into smaller packages for a 3000-lb. run, is a gain in time. The pressure is better, and thus the honey may be forced out more rapidly at the open gate. With a barrel, for instance, owing to the pressure from the honey above, the first half of the barrels fills more readily than the second. No strainer that can be utilized can be found that will strain honey at the rate of 1000 to 1500 lbs. per hour, and be fine enough to remove the finer specks of wax, etc. One may not see these specks when the honey is liquid; but when the honey is granulated nice and white, they show at once like dust on the surface, and are very objectionable to the uninitiated, such as the average consumer of honey.

The twelve-frame extractor worked well.

There is no trouble in extracting with it 14,000 to 15,000 lbs. of honey in a day.

Fig. 1 shows one of our apiaries, July, 1912, which produced sufficient honey to fill three of these large tanks and six or seven hundred additional pounds. The hives shown are the twelve-frame Langstroth. We tiered up supers until the close of the white-honey flow, when all was extracted, but not a comb was taken from the brood-chambers. There were brood-chambers so filled with brood (yes, I must confess my lack of foresight) that several colonies actually starved to death for want of food during my absence of several weeks after the honey-flow. (I have no queens to sell. Many beekeepers have as good queens as I have if they would only overcome their prejudices and give their queens a chance in the twelve-frame brood-chamber.)

MOVING.

A question might be asked as to the practicability of moving this extracting-outfit from one apiary to another. In this matter I was most agreeably surprised. Fig. 2 shows the outfit on a wagon. We took the twelve-frame extractor, turned it on its side, and rolled it through the honey-house door, turning it again to its normal position and pushing it up a plank upon the wagon. The engine shown in the same engraving is the small one; but the larger one can be loaded more readily than the extractor. The other implement on the wagon is the uncapping-tank standing by the driver of the horses.

My outfit cost more than I expected; but I am well satisfied with it. It is a great convenience and labor-saver.

Speaking to the young men who spent the season with me learning beekeeping, I said, "If I had been asked at the outset to buy a 3½-horse-power engine with which to extract, I would not now have a power outfit; but by taking two steps the cost was broken to me by degrees, and I yielded."

We found a difficulty in connection with pumping the honey—the belt slipped. A remedy has been found, however, and I have no hesitation in recommending a power outfit for extracting; but I have no use for the plan of hauling home combs of honey to be extracted. The honey can be extracted in the time which it would take to haul the combs to a central station and back again. Also, where there is any danger of foul brood it is much more liable to be spread by changing or carrying combs from apiary to apiary. Of course, if there is no extracting place it is a different matter. If I wanted to keep myself busy without ade-



Honey-house and Bee-cellar of M. C. Silslee, Haskinville, N. Y.

quate returns, the latter system might commend itself to me.

Brantford, Canada.

A CONVENIENT EXTRACTING-HOUSE AND BEE-CELLAR

BY MYRON C. SILSBEE

I am sending you a picture of my bee-cellar and honey-house which was built in the summer and fall of 1911. The building is 24 x 40 feet north and south, having a cellar of the same dimensions. A partition runs through and shuts off the cellar from the tank-room. The cellar is 24 x 30, and the tank-room 24 x 12. I have a room above, 24 x 30 feet, which I use for an extracting and storeroom. I also crate and clean my comb honey for market here. The room is ceiled overhead with matched lumber. I have a power extracting outfit, and pipe through the floor. The pipe is three inches in diameter. It conveys the honey to the tanks in the tank-room below, which hold about 4500 pounds each.

There is a door in the north end of the bee-house, 7 ft. high by 3½ wide, through which I carry the honey in from the hive. The door in the southeast corner of the tank-room is 4 ft. wide, through which I carry my bees into the cellar and then through a door 3½ ft. wide through the partition into the bee-cellar.

Then I have a room in the south end of bee house, 24 x 10, where I have a stove and workbench where I extract wax and nail up hives and supplies. There is a double floor of hard pine with building paper between. I have four trapdoors in the floor, 14 x 21 inches, for ventilating the cellar.

The cellar has a cement floor, and is sealed overhead with matched lumber. The walls under the building are laid up in Portland cement mixed 5 to 1. The walls are 3 feet thick at the bottom and 18 inches at the top. I cover the cellar floor with two or three inches of planer shavings. The bees are set on plank 6 inches from the floor with bottom-boards removed to allow all dead bees to drop out during the winter. I generally put the bees in the cellar from the 10th to the 15th of November, and set them out about April 1. The outside of my bee-house is sheeted with one-inch planed hemlock, shiplap, covered with building paper, then sided over.

The chimney on the bee-house is built of cement. Then I have a building at the northwest corner of the bee-house, which does not show in the picture. It is 12 x 15 feet. I have a gasoline-engine, saws, and dovetail cutter, where I saw my hives and supplies; but I would not advise any one to make his own hives and supplies.

I intend to lay up the brace-walls on the east side of my bee-house, and grade up



FIG. 1.—Set up ready to extract with porcelain-lined kettle and washtub in foreground.

to the siding. I have 160 colonies in the yard at present. The picture was taken about Sept. 10, at the close of the buck-wheat flow, after some of the supers had been taken off.

The third and fifth colonies in the second row, beginning at the right, produced about 150 lbs. of clover and basswood honey each. The fifth colony in the fourth row, beginning at the right, with two supers on, is a ten-frame hive which produced 100 lbs. of clover and basswood comb honey in beeway sections. I had a number of colonies in the apiary that bore equally well. Most of the colonies that ran for extracted honey averaged about 25 lbs. per week during the clover and basswood flow.

Cohocton, N. Y.

A LIGHT PORTABLE EXTRACTING OUTFIT

BY H. D. MURRY

Some beekeepers hesitate to start out-yards because of the expense of maintaining a separate extracting outfit at each yard, or because of the trouble of hauling the ordinary outfit from one yard to another. To such it may be interesting to know of a light outfit that I use. The whole thing does not weigh more than 150 pounds, yet it is effective and convenient.

The extractor is a Cowan reversible, No. 18, with comb-baskets large enough to take two frames each of the shallow frames we use in the production of bulk comb honey. These frames are $5\frac{3}{8}$ inches deep. We use them also for extracting; and, although the extractor has only two comb-baskets, we put in four combs at a time, making it equal to an ordinary four-frame extractor. The uncapping-can consists of two galvanized iron tubs of such size that one will just slip down about an inch in the top of the other. We cut out the bottom of the upper tub, leaving an inch or so all around, and put in a bottom of galvanized wire, about four meshes to the inch. A strip of board three inches wide which runs through the handles of the upper tub completes the uncapping-can. Our uncapping-knife is a Bingham of the "vintage" of 1897. It has a much thinner blade than those turned out now, and does much better work. We do not use any water, either hot or cold, as we do not need it with this knife.

For the purpose of catching the honey from the extractor, we use a galvanized iron can 12 inches in diameter and $12\frac{1}{4}$ inches deep. We tie a cheese-cloth over the can and set it under the gate of the extractor. When full it holds a little over five gallons. There is a molasses-gate near the bottom of the can.

Our uncapping-can will hold all the cappings for one day, the honey running through the wire bottom to the tub below, which must be emptied from time to time. At the close of a day's work we empty the lower can; and by morning, in this hot climate, the honey is practically all out of the cappings. We have found that any honey that might drain out afterward is too dark to suit us. We then melt up the cappings in a porcelain-lined kettle and squeeze out the wax with two boards fastened together at the end. The wax is caught in another galvanized tub, and the slumgum may be saved in a sack to be run through a wax-press later. There is very little wax left where nothing but cappings is melted up. These tubs, with the kettle and honey-can, all nest together, so that they take up only the room in a wagon that one tub would occupy.

We are engaged mostly in the production of bulk comb honey; but we have to have extracted honey to pack the comb, and we find this outfit entirely adequate to our needs. The entire cost is only about twenty dollars; and, being so light, we can put it on a wagon with empty cans enough to hold all the honey our crew will pack in a day. It can be set up in a few minutes after we reach a yard, and we are ready to go to work.

If anybody wants an outfit that will cost \$150, and take a pair of good mules to pull,

he has my permission; but I have not yet felt the need of such an outfit, and I prefer to use that money in keeping more bees.

Mathis, Texas.

[Mr. Murry does not say how much honey he can extract in a day with his outfit; but since he produces only enough extracted honey to use in packing his bulk-comb we have no doubt but that the outfit has capacity enough.—Ed.]

A PORTABLE EXTRACTING-HOUSE LARGE ENOUGH FOR A POWER OUTFIT

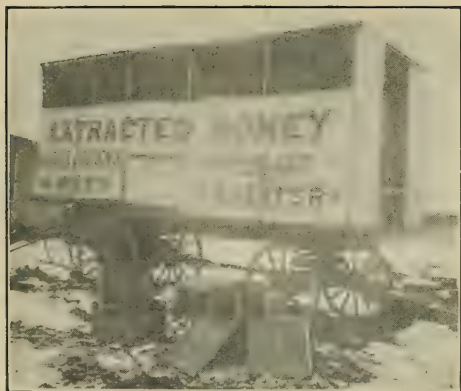
BY V. V. DEXTER

I am using an extracting-wagon which is very satisfactory. It is rather low, but at the same time it pulls easily over the average road. The floor is 7 by 14 feet. The top is about 6 feet high, and made of canvas over a frame of 1 x 2, with 2 x 2 corners, and braced with wire. The whole does not weigh more than the ordinary wagon and hay-rack. I use this wagon not only for extracting, but also for a shop, bunk-house, and dining-car, or whatever I need it for at the yards. As I have no building at any of them it is fine to have a cool bee-tight house to take with me on my trips. I work alone, and care for 450 colonies.

This wagon is exceptionally good in moving bees. I never close the hives. I simply



FIG. 2.—Packed ready to move, with a cake of wax from the tub leaning against the nest of tubs.



Dexter's extracting-wagon, which is large enough for gasoline-engine, capping-melter, etc.

drive up to the yards, take off the horses, load up, shut the door, hitch up again, and drive off. Not a bee can get out; and if a few do leave the hives and fly to the windows, it is easy to give them to the weakest colony when they are unloaded in the new yard; but I am not bothered that way unless it is necessary to stop some time while on the road.

HEATING HONEY AS SOON AS EXTRACTED TO RETARD GRANULATION.

In extracting I use a Gilson engine, four-frame extractor, steam-knife, capping-melter, honey-heater, and storage-tank under the floor. The honey is pumped from the extractor to the heater where it is heated enough to avoid granulation, also to remove all specks. From there it runs to the tank under the floor, the tank being large enough to hold one-half to a day's extracting; and as the honey is warm, it is only a few minutes' work to run 1200 or 1500 pounds into cans ready for market. Heating the honey when it is first extracted does not injure the flavor, as it is apt to do if left till after granulation. I have had alfalfa honey remain clear a year because it was heated *when first extracted*. It is practically impossible to get all the specks out of our thick honey unless it is heated.

My old plan, and the plan of many western beekeepers, is to strain through window-screening at the time of extracting, and, later, heat and strain through cheesecloth. By the method I now use, the honey takes care of itself till the end of the day, when it can be canned ready for market.

In the picture the tank under the floor does not show, as it was removed after the extracting was done. The door in the front end has been taken out also. It is of cloth, and can be easily taken off.

Practice has proven to me that the front end is the best place for the door. With a slide it is possible for one man to put from twelve to sixteen full-depth supers into the wagon without getting in himself to arrange them. In removing empty supers it is also easy to remove almost as many without the trouble of climbing in.

North Yakima, Wash.

PAINTING QUEENS SO THAT THEY MAY ALWAYS BE QUICKLY FOUND

A Quick-drying Non-injurious Paint that May be Applied with a Wire

BY H. BARTLETT-MILLER

Nothing "straight from the beeyard" having appeared in any of the journals to guide the would-be queen-marker in the somewhat fearsome job of making our black and leather-colored majesties easier to find by means of paint, I determined this spring to find out for myself, and brand every queen in my home yard of 186 colonies. My knowledge that this was possible was gained from a notice in the *Review*, that clear spirit varnish is used to mix the color with. At best this advice was very vague. Some spirit varnishes would kill a fairly strong dog, let alone our delicate queens. Knowing most of the stunts in making spirit varnishes, I decided to use a simple tincture of benzoin, this being merely pure gum benzoin dissolved in alcohol. It can be compounded by any chemist, and a quarter's worth will last a thousand-colony man eight or ten years unless he paints the workers.

This solution of benzoin has a strong but very pleasant scent; and if odor had much to do with our queens, the scent of the benzoin would have led to all mine being promptly balled, whereas not one met such a fate. Its peculiarity for our use is that the paint is dry and washable in a few minutes. In fact, 30 seconds suffices to dry quite a thick application on the queen.

Having obtained a clear liquid tincture, use any dry color you fancy, taking care to avoid red lead or even white lead, as either may kill either the queen or the bees which might try to lick this decoration from the queen's back. I took dry-powder lemon chrome, of which any painter will sell, for a few cents, a sufficient quantity to last a lifetime. It costs about 14 cents per pound.

Take a very small domestic-essence bottle and a piece of wire (say one strand of barb wire) cut off enough to reach to the bottom of the bottle, and to stick up a quarter of



FIG. 1.—Home apiary of Daniel Danielson, Brush, Colo. Through the center of this apiary runs a track for the hand-car shown, which is used for carrying supplies in and out of the yard.

an inch through the cork, through which it must be pierced. Bend the wire over to prevent the cork from coming off. Now flatten with a hammer the other end of the wire to make a spatula with which to apply the paint.

Fill the bottle about half full of tincture, and drop into it any coloring matter handy. Half a saltspoonful of liquid bluing does very well. If you have to use a dry piece it acts just as well. This washing-blue alone I find is too dark. Queens marked with it are very little easier to find than if unmarked; so, mix a little whiting, chalk, dry white clay, or any thing that will lighten the blue, and remember that it dries considerably lighter than it appears in the bottle. Mix yellow and washing-blue for green, as powder greens all contain either copper or arsenic, and we wish to run no risks with poisons, either with our families or bees. The coloring matters are not dissolved in the tincture of gum benzoin, but only mixed in it, and the benzoin only acts as a fastening medium after the spirit has evaporated.

Now for the last time, let us hope, go through the time-honored and time-wasting task of finding madame by adopting the sifting-through-the-excluder method, which is the best idea, except branding, that I have hit upon. Be careful, after the last frame is shaken, not to smoke riotously the bees with a view to hastening the departure of the bees to the lower regions. This was

an error I fell into. Too much smoke so demoralizes the bees that they boil over the top of the empty body into which they have been shaken, and her majesty goes with them, and you "dunno where she are," and she has to be let alone while you make another trial elsewhere. Just smoke *gently* the top edge of the body, and keep on going all around it, and in short order the bees will keep turned head downward, and very quickly get through the excluder.

Having pounced upon the cause of all the roar and hubbub, grasp her with finger and thumb by the thorax as though you meant to clip her. I always clip mine, if needing it, at the same time as branding, and with the bottle-neck curled tight in the little finger of the same hand draw the cork with the other hand and apply a fairly liberal dose of the liquid paint on top of her thorax, and a little on the end half of the wing left unclipped. One would think that any bee, black or yellow, carrying a dab of bright yellow paint on her thorax nearly an eighth of an inch square would be seen at once on the most crowded frame; but let madame jam herself between the comb and bottom-bar, and she may hide there all day before you see her; but the colored wing seems to show up directly.

Any way, after branding my first twenty on the thorax only, a week's heavy weather followed; and going over them to test the new adventure, and to count the supersedings, I found none of the latter, and all too

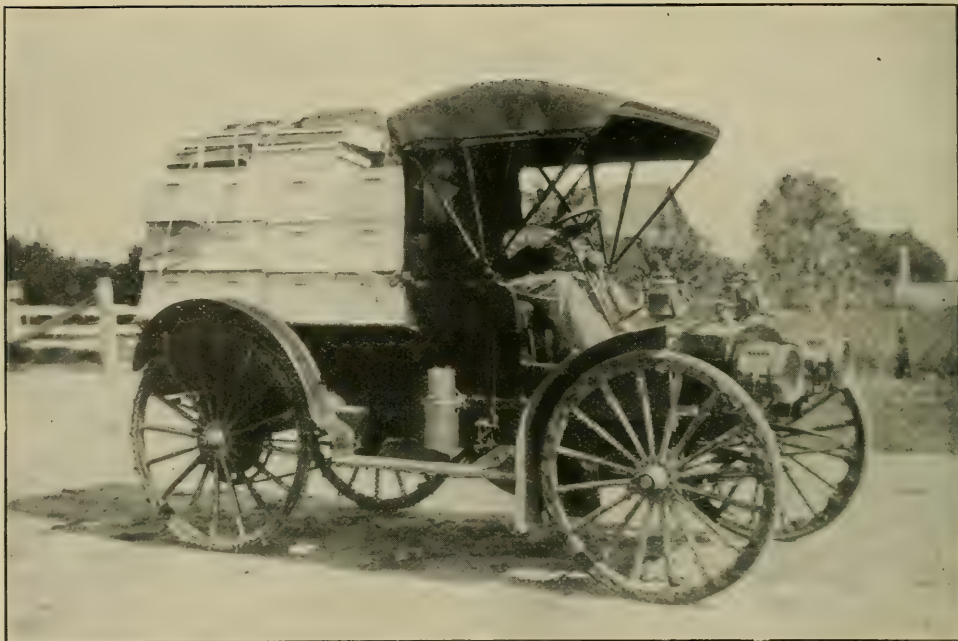


FIG. 2.—Danielson's International auto-wagon, loaded ready for a trip to an outyard.

few of the branded queens—that is to say, without more searching than I had thought would be needed. So I “put some more on,” and this time on the end of the wing as explained above, and, presto! “she could not be hid.” It was a bit of fun to watch the frantic efforts of first the queen and then the bees trying to make mother look less “dudish.” The queen’s antics reminded me of a rooster paying court to a hen, dropping one wing and sweeping the ground

with it. She tried and tried for fully a quarter of an hour between the sweeping business and fanning to try to unburden herself of this unusual encumbrance. However, three weeks after, they had all grown used to “having ’em all on.”

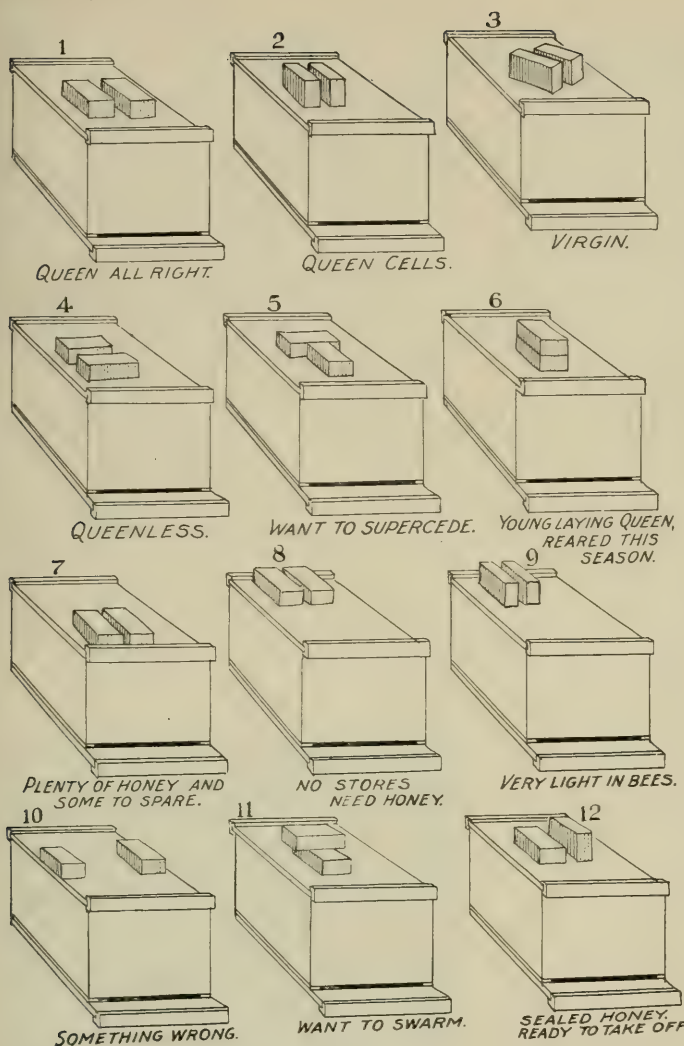
Now, the greatest surprise I received during the whole business was the attitude of the workers toward the queen running fairly fast over the comb, carrying what I declare none of them ever saw the like of

before. The scent, too, was strange to them. According to all we are told, the workers ought to have promptly taught that queen proper manners, and to have made her realize that to royalty such “hyper scentsiveness” was entirely out of place. Instead of that, all who could kept up with her and attempted to lick off the fast-hardening brand.

I do not like to suggest to the editor that it was the alcohol they were after; but in the first few cases, lick it off they certainly did, and with very evident relish. So I learned either



FIG. 3.—The same truck shown in Fig. 2 transformed into a pleasure-car.



Another caution is when marking the wing. Be careful not to daub the abdomen. If the square end of the flattened wire is just touched on the wing ever so lightly in the center of its length, the wire marker can be lowered till the wing moves toward the marker. When drawing it away it brands the wing. Try a few drones first. Do not be content with the thorax mark alone. If you can see a queen with that mark only, you could, in the case of yellow queens, find her with no mark at all. My queens were marked at the spring overhaul, when no drones had yet hatched. All are very dark, being granddaughters of a queen imported thirteen thousand miles from Italy, and a few queens are black. Old queens were marked with the lemon chromo.

This season's queens are being marked with the washing-blue made lighter by addition of whiting used for fire-places. Young queens just laying are an exception to the calm behavior noted on the part of the older queens. The clipping and branding so excite the little "newly weds" that in two cases, while some bees were going for the "whisky" on the thorax, others were balling the queen, and I had to use a deal of smoke; and while all were roaring, I shook the queen with a frame of bees at the entrance, and let them all run in together. But the five or six that acted in this way were laying serenely the next morning.

All together I found and branded queens from the whole apiary of 186 colonies in four days, doing a few other items of manipulation as needed, such as filling supers lacking a few combs, and arranging brood in supers when necessary. I judge that one man ought, by the sifting method, to find and brand five queens per hour. But if

to hold the queen until, by the dullness of the paint, I knew it had dried, or else I let her wander around for half a minute on a bare comb. This half-minute seems a much longer time when you have three or four days' branding to do in front of you; but unless the alcohol has quite evaporated you will find your queen, when next you go to her hive, with only the remnants of a brand—far too little to be of practical use to the large apiarist.

A word of caution to the nervous: Brand the queens when holding the abdomen—not the head—toward your right hand. I branded one head toward me, and daubed the end of one of the antennæ. I found queen-cells four days after, and no queen. I had noticed this bungling on my part, and had marked the hive for future investigation.

you do not happen on her majesty when glancing over the combs as you lift them out to shake, don't waste time looking any more for her; but shake away. Make very sure, too, that your excluder is nailed securely to the bottom edge of the hive-body you use. Don't trust a framed excluder loose. You will bump the body over the edge, and your queen will be gone like a flash. Out of my lot I lost only the one whose antennæ I painted over eleven weeks ago. No branded queen but that one has been superseded, so that the wing-branding can be no detriment.

Kihikihi, Waikato, N. Z.

[We see great possibilities in "branding" queens. A queen easily found at almost any time ought to be much more valuable than one not marked.]

Without having tried it ourselves, we should think that red would be the most conspicuous color that could be used, with green, perhaps, a close second.—ED.]

THE INTERNATIONAL AUTO WAGON FOR OUT-APIARIES

BY DANIEL DANIELSON

A request was made in GLEANINGS some time ago for ideas from beekeepers who make a practice of running for extracted honey with outyards, and who carry the honey home in the combs before doing the extracting. That is just what I am doing.

I got an International auto wagon, as the pictures show. I have four outyards located from three to twelve miles from home. I carry all my extra hives and supplies on the auto to the outyards, and the honey home in the combs, and the empty combs back.

Fig. 1 shows my home yard with a hand-car on the track, myself sitting on it.

Fig. 2 shows the truck loaded with hives ready to start for the outyards.

Fig. 3 shows the same vehicle ready for a pleasure-ride.

I have done away with all hive numbers and all book-keeping and records, as they are time wasted. I use bricks, as the drawing shows, and I find that they answer the purpose very well. Something is needed to hold the covers on any way, and two bricks will do it in the strongest wind. When I come to the yard, there the record of all the hives is right before me. The bricks show the condition the colony was in when looked at last. I can not see nor find any thing more handy. I have used this method for ten or twelve years.

Brush, Colo.

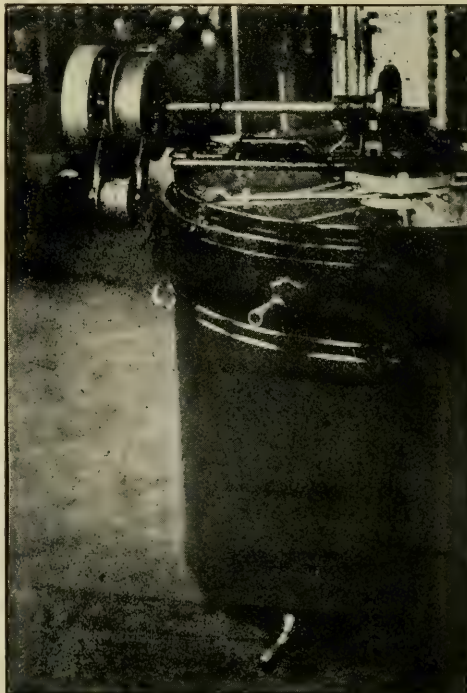
THE EQUIPMENT OF A SMALL HONEY-HOUSE

BY JOSEPH GRAY

In the ideal small honey-house there should be a platform in the southwest corner of the building 18 inches or any other height desired. Mount the extractor on it with the gate over the tank below, and just east of it, locate the uncapping-can.

The tank is placed below the platform, and a pit is dug in order to facilitate the drawing of honey from the tank. The tank has a division at the east end, with a one-inch honeyway beneath it. By this gravity process all the scum is left at the west end of the tank, and the clean clear honey is drawn off at the northeast side of the tank. Quarter-inch screen wire over the tank, in at least two sections, gives ready access to the tank, and renders it mouse-proof. Cheese-cloth on this screen forms the honey-strainer and renders the tank bee-proof.

The honey is brought in through either door, and one may choose between lifting the supers or bending the back and lifting the combs. No honey is handled heavier than a comb until it is placed in the 60-lb. cans. If a 3-ft. tank is not sufficient ea-



A double-walled honey-extractor. The space between the two cans is for water, and it takes the place of the water-tank of a gasoline-engine. The water gets hot enough to warm the honey so that it strains easily.

capacity, a 6-ft. tank extending under the platform can be installed. An excellent storage place is found beneath the east end of the platform for honey-cases, etc.

The screen windows are on the east and west. The screens should come 3 or 4 inches above the opening, and $\frac{3}{8}$ to $\frac{1}{2}$ from the side wall. In the morning the bees, both inside and out, are attracted to the east window; and the scent coming direct from the screen does not attract the bees to the exit 4 inches higher up. In the afternoon the bees are attracted to the west window, and so your extractor, etc., are always free from bees; whereas if the screen is placed directly over the extractor more or less bees will be constantly falling in.

I particularly wish to call attention to the door. Never make a screen-door. Let it be solid, so that as few bees as possible will be attracted to its locality. The same idea is followed in the door as in the screen. The door west, being in the shade during the morning, will attract fewer bees. The door east, being in the shade during the afternoon, will attract fewer bees.

Bakersfield, Cal.

THE INTERNATIONAL AUTO WAGON AND PORTABLE EXTRACTING OUTFIT

BY J. E. FARR

If the owner is the driver, and a careful driver, and if he uses one of the International Harvester auto wagons with a high wheel and solid tires, I find there is a saving over the feed of a horse. The horse will cost about 75 cts. per day for feed if you feed him properly. Furthermore, your time is lost, principally on the roads. To do the same work, gasoline costs less than the horse-feed, and nearly all the time on the road is saved.

My west yard is equipped with two buildings. One is a store-house for combs, and the other an extracting-room. I equipped this building with as good an equipment as money can buy. I use an eight-frame automatic extractor driven by a two-and-one-half-horse-power Sandow engine. A rotary pump conveys the honey through pipes to 1000-lb. storage tanks, six of which I have in the one yard.

I thought of hauling combs here to extract, and I tried the plan to my sorrow. Just think of making a trip to an out-apiary, taking off perhaps 1200 lbs. of honey, drawing the combs to the central yard after you are exhausted lifting them on the wagon or truck! You do the same heavy lifting at the other yard, and then return

the empty combs after you have washed out your wagon or car, which must be done to prevent robbing. Furthermore, I use thick-top unspaced frames, and I was disgusted at the appearance of those beautiful combs, all bruised and jammed out of shape. If one used shallow self-spaced frames, perhaps they would stand the hauling, but I can not afford to lose the time.

We have a portable and collapsible honey-house, 6 x 6 x 14, which can be moved on a low wagon just as it is. It may be folded down on the bottom. The ends are made of square frames of 2 x 4 stuff, sealed with pine flooring. The lower half of the sides is covered with paroid roofing, and the upper half with wire screen; and I use white oilcloth for curtains, also for the top half. This space is enough to allow the equipment which I have before spoken of, only I use two 1000-lbs. tanks and remove the honey into the cans each morning. This allows the honey to settle over night. As fast as I fill these crates of pails they are loaded on to the truck and left right there until the day's work is done; then for our evening job they are hauled to a barn for storage.

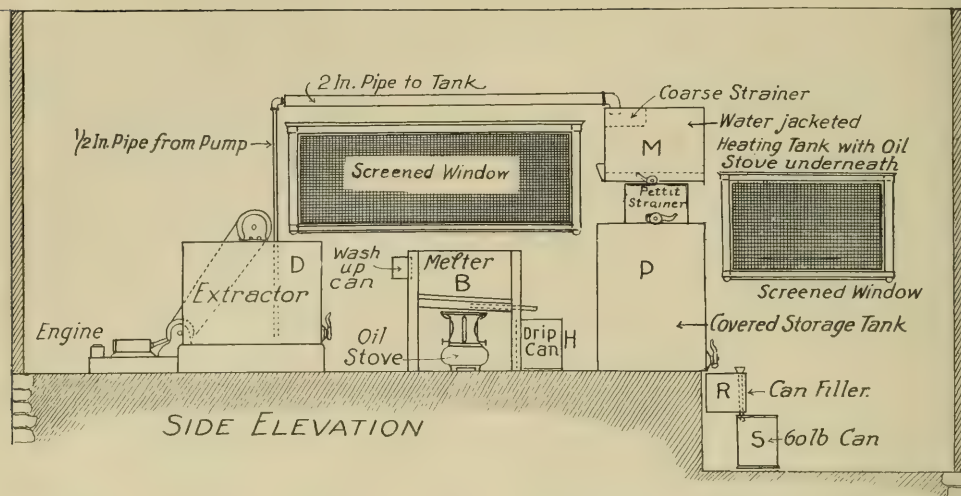
Low Banks, Ont., Dec. 3.

A COMPLETE EXTRACTING-OUTFIT

The Use of Capping-melters, Strainers, Pump, etc., at Out-apiaries

BY E. L. SECHRIST

F. R. Beuhne, on p. 489, Aug. 15, 1911, has, I think, stated the case fairly for and against the capping-melter. During this season I have used three capping-melters, one being the Severin, described in GLEANINGS, page 722, Dec. 1, 1911. The others were the combined melter and McIntyre uncapping-box described on pages 406 and 410, July 1, 1912. Comparing the two, the Severin is small and easily moved. The other is bulky, and adapted only to a permanent location. The Severin requires a two-burner stove, as all the honey contained in the cappings must also be heated while melting the cappings. The combined melter, on account of draining off much of the honey before melting, requires only a one-burner stove, and much less honey is darkened by heating. Again, it is much easier to uncap into a large box than into a small melter like the Severin. The combined melter also takes care of all the drip from uncapped combs waiting to be extracted, so that there is no dripping of honey any-



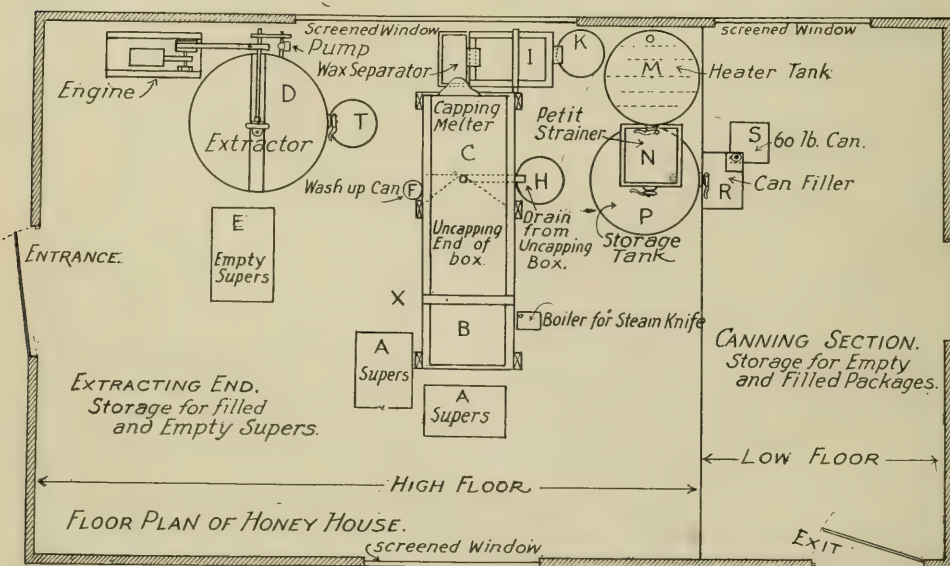
where but in the one box (all the sticky mess in the one box), and no handling of any thing but the honey as it drains off, and the cakes of clean wax as they come from the wax-separator.

I have been much pleased with the Severin wax-separator. The honey is separated from the wax at once, and the wax is produced in clean uniform cakes free from slumgum or honey, and ready for the market. It means something not to have to remelt and mold from three to five hundred pounds of wax yearly.

The engravings show the arrangement of my extracting-house. From the power extractor the honey is pumped to an elevated water-jacketed heater-tank. I was unable

to operate the pump satisfactorily on our thick cold honey until it was connected with the extractor-shaft by chain and sprockets, and then it *had* to work. As the honey comes from the pump it passes through a coarse-mesh screen in the top of the heater-tank, which catches any large bits of comb, etc.

Being heated in this tank to about 100 degrees it will readily pass through a fine cheese-cloth strainer. I prefer the Pettit improved square strainer, which has eight square feet of straining surface, nearly all of it vertical. It is illustrated in the *Review* for Jan., 1910. It is far ahead of the round Pettit strainer or any other I have tried. I use it with an additional, very



loosely fitting basket of window screen inside the cheese-cloth. This catches all the scum, bits of wax, etc., which otherwise would soon clog up the cheese-cloth. I have used one strainer continuously, not changing the cloth during a day's run of about 2000 lbs.

The strained honey runs into a covered storage-tank, and, as time permits, is drawn off into the can-filler through a two-inch gate. This large gate permits a rapid flow into the filler which is merely a square can marked at height to hold sixty pounds, and with a bottom sloping toward the outlet. This outlet drops a quarter of an inch into the mouth of the five-gallon can, and is screened with a $\frac{1}{8}$ -inch-mesh netting to prevent flying bees from dropping into the can when it is being filled. Simply let the honey flow (through a wide open gate) into the filler up to the mark; pull the plug which closes the hole in the bottom of the filler, and go about your business of nailing up cases, or whatever it may be, and, when you are ready, drop in the plug, replace the full can with an empty one, and run the filler full again. With this plan there is no lifting of the extracted honey until it is in the can ready to put into the case. This arrangement for extracting has been a labor-saver for me, as I have, working alone, taken off the hives and extracted in one day 2500 lbs. of thick sealed honey, running nearly all of it into sixty-pound cans.

I bought a second-hand Sears light delivery truck this season; and, although it has given me considerable trouble, I believe there is no other business into which an auto fits so well as beekeeping. It is only fair to say that the truck runs much better now than when I bought it. At one yard I hauled filled supers half a mile to be extracted, and returned the empty combs to the yard. This was very satisfactory; and if roads were good I should like to try hauling every thing to a central plant, which could be thoroughly equipped. Our roads are so bad that it seems advisable to have a fairly complete outfit at each yard.

OPERATION.

Filled supers are brought into the house through the solid door (no screen, and piled wherever desired in galvanized iron trays a little larger than the super, and one inch deep, which catch all the drip.

The operator stands at X, within easy reach of a pile of full supers at A, extractor at D, and super for empty combs standing in tray at E. A second uncapper may stand at the opposite side of the box, near G F. is a gallon can containing water for

washing sticky hands, etc. It is hung on a nail on the side of the uncapping-box. G is the boiler for the steam uncapping-knife. Cappings fall on the screen at B, and, after draining as long as may be convenient, are pushed toward the left, off the screen, on to the heated surface of the melter at C, from which the melted mass flows into the wax-separator I. A pail at K receives the honey flowing from the wax-separator. If extracting light honey this should be kept separate; otherwise it is poured directly into the strainer.

The honey draining from cappings, unheated, passes through a trough into the pail at H, and is two-thirds or more of all the honey contained in the cappings, depending on the time it is allowed to drain before melting.

From extractor D, pump L raises the honey through a two-inch pipe for the horizontal run, to lessen friction, into the heater-tank M. A pail at T may be used to handle the honey if the pump is not working. A coarse-mesh screen catches bits of comb, etc., that go through the extractor. This heater-tank has a double water-bottom with a series of channels through which the honey runs, and is heated on its way to the gate. N is a square Pettit strainer through which the honey runs into the covered tank P, then into the filler tank R, and into the sixty-pound cans.

With this plan, all combs are kept in the end of the house nearest the entrance, while all canning of honey and storing of empty and filled cases is in the opposite end near the exit, from which the filled cases are loaded on the wagon.

The bees brought into the house fly to the long screen windows and escape through bee-escapes, or into trap boxes until the work is finished.

Fair Oaks, Cal.

OUT APIARIES AND EQUIPMENT

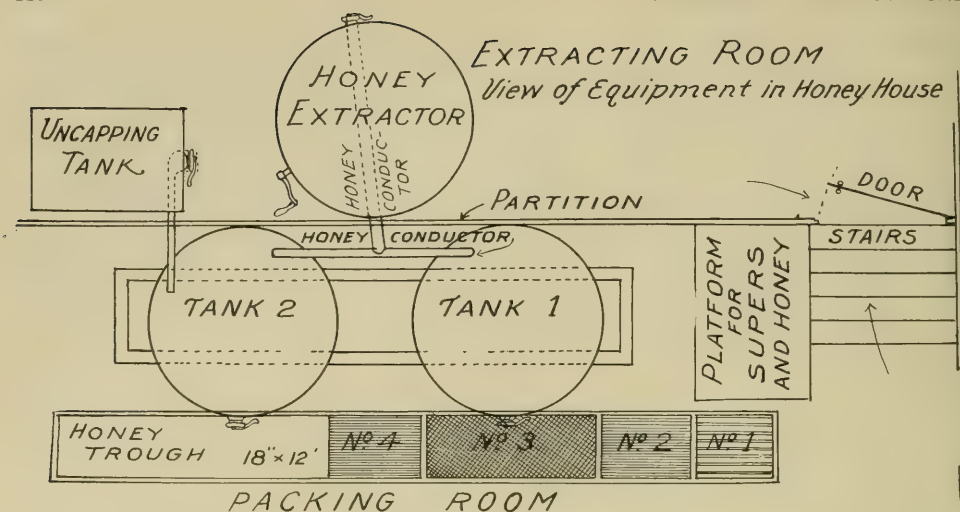
Packing-house for Extracted and Bulk-comb-honey Production

BY J. J. WILDER

The size of out-apiaries makes all the difference in the equipment. It matters not whether they are operated for comb, bulk comb, or extracted honey.

If the honey flora is abundant, large apiaries can be established; and it would be more convenient and economical to have adequate equipment at each apiary.

But if the honey flora is limited, and only small apiaries can be kept, it is better to have one good equipment at the home yard.



If, however, a great number of small apiaries are in operation, there should be suitable equipment at the most central apiaries, and the surrounding ones worked from those centers. If the apiaries are very small, consisting of only 30 or 40 colonies, it is not economy to have even a small building at each yard.

If, on the other hand, the apiaries consist of 50 to 60 colonies or more, it is more economical to use a small cheaply constructed building at each yard in which to keep supplies which are ready for use, and which can be hauled from the main yard, and housed during the more idle time, and be there in readiness for the rush. All supplies not in actual use can be put in buildings of this kind, and protected from the weather. I am speaking from experience and for the South.

As to what the equipment should consist of, it depends partly on the kind of honey produced. But let me first say that at the home apiary and the central outer apiaries there should be at least a cheaply constructed workshop large enough to work in and to hold the stock of supplies, both in the flat and after they are in readiness for the surrounding apiaries. This building should be separate from the honey-house, but near it.

CONSTRUCTION OF HONEY-HOUSES.

Now about the construction of honey-houses economically and for service. A honey-house should consist of not less than two rooms or two separate apartments. Two rooms may be built large enough to suit the room requirements of almost any bee business.

The floor of the rooms should be within a few inches of the surface of the earth,

and the floor in the packing-room, at least, should be made of cement, and the sills of the building should rest on a solid brick or cement foundation unless good lasting wood material can be obtained. The material used for siding should be matched or well stripped about the joints; and it is needless to state that the building must be bee-proof throughout—even the wall or partition between the two rooms.

There should be a solid door not less than 3 ft. wide between the two rooms, and one of the same dimensions on the front side of each room, opening from the outside, with sliding screen doors on the inside.

Each room should have not less than two large glass windows, one opposite each door on the side, and one in each end of the room. The entire opening should be covered with screen wire.

A wide smooth shelf or bench constructed across the side of the room opposite the doors will be necessary. In the packing-room this bench is convenient for packing honey, and in the other room it is used in cleaning supers. We call this our super-room. In honey-houses constructed for extracted honey we call this the extracting-room.

The floor of this room is elevated about 4 ft. above that of the packing-room, and steps lead up to it from the door in the partition. We plan for a slight elevation in front of the outside door of this room, in order that honey may be unloaded on a level with the floor. We usually build this room up on pillars of the proper height, and leave it open underneath or remove some of the earth from beneath, and make a storage-room of it.

The honey-tanks are inside the packing-

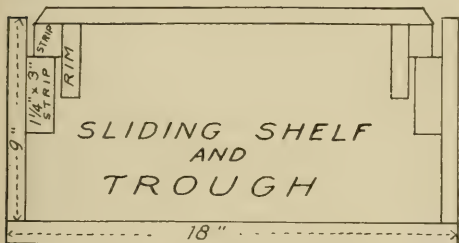
room; and on the other side of the wall up in the extracting room is mounted the honey-extractor, and from it the honey runs through pipes in the wall into the tanks below, from which it is bottled, canned, or barreled. The uncapping-tank also rests against this wall, and the honey passes from it to the tanks in the same manner.

A similar house is constructed and equipped for bulk-comb-honey production. The honey-tanks stand up on two strong pieces of timber with sufficient upright pieces of the same material to support the tanks, which are well braced, leaving it all open under and around the tanks.

If we are fixing up the packing-room for packing bulk honey we erect a platform near the end of the frame, on which the tanks rest, next to the steps. The supers of honey are brought from the extracting-room, where the honey has been graded.

SLIDING SHELF AND TROUGH.

Next in importance is the trough, which is zinc-lined, or made water-proof, with a honey-gate at the rear end. The bottom is so put in as to be about two inches on the decline to it. This trough is movable, and rests on timbers so it can be moved up or down a few inches to suit the height of the vessels to be filled. It rests about three or four inches back under the honey-gates of the tanks. The cans to be filled can be passed just under them on sliding shelf No. 3. About two inches from the top of this trough, on either side, is nailed a strip $1\frac{1}{4} \times 3$ in., and sliding shelves No. 1, 2, 3, and 4 rest on this strip. These shelves are formed on rims made of one-inch lumber about 3 in. wide, which just fit down between the strips on the trough, leaving



about $\frac{1}{4}$ in. of play; and on either side of these rims, even with the top, is nailed a strip $13-16 \times 1\frac{1}{2}$ (see diagram). This forms the slide, and on top of this is nailed the shelf, which makes it just a little above the top edge of the trough, and they can be lifted out or moved along in it as may be most convenient. The honey that may accumulate on these shelves can be scraped off or it will run off into the trough.

Now, regarding the use of these shelves on which all our bulk comb honey and most of our extracted honey is packed, shelf No. 1 is covered or made of slats on which the supers of chunk honey are placed, one at a time, at the right of the packer, who stands in front of shelf No. 2. This shelf has a heavy zinc covering over it, on which frames of honey one at a time are placed from No. 1, and the honey is removed by passing a sharp knife around close to the frame. The frame is then removed and placed on the frame-rack over the tanks, to drain for a while. The honey is then cut in strips the size that will best fill the utensils through their mouths endwise. Thus wider strips may be placed in a larger-mouthed vessel, and smaller for small ones. The strips of honey are lifted from the shelf by passing the blade of the knife under them one at a time, and placing them in the vessel until neatly filled. The can which is being filled is held with the left hand, and then is set on shelf No. 3. This is the duty or task of packer No. 1.

Shelf No. 3 is covered with fine screen twice double, which passes all the way around the frame. It is drawn very tightly and is nailed securely. Then the strips on either side, upon which it slides, are nailed on.

Packer No. 2 passes the vessels thus filled, one at a time, on this shelf under the honey-gate, where they are filled with extracted honey, after which they are set on shelf No. 4, which is covered solid with a board. Here the honey is sealed and labeled. Any honey that may be on the outside of the cans is cleaned off, and they are put in crates ready to be nailed up. This is the duty of packer No. 2, and these two packers put up nearly 2000 lbs. per day.

Shelf No. 2 has a slightly oval surface, so the honey oozing from the cut comb will run off; and when it does not, it is quickly removed by passing the blade of the knife over it.

Shelf No. 3 has a smooth surface. All the honey that may drip from the cans, which is usually a considerable amount from both the honey-gate and the work of packer No. 1, will pass down through it into the trough.

All the best extracted honey is run into tank No. 1, and is packed with the fancy comb honey in glass vessels. The darker grades of extracted honey are run into tank No. 2, and are packed with the off grades of comb honey in tin vessels. Also the honey from the uncapping-tank runs into this tank. When we are filling cans at tank No. 2 we arrange the sliding shelves about it in

the same manner as we do at shelf No. 1. I use the common galvanized 3-inch water-conductor pipes to run honey into the tanks. The conductor running from one to the other is about two inches above the tanks, and the one running from the extractor runs into it. This conductor is separated by the one from the extractor where it passes through the wall; and if we want to run the light honey from the extractor into tank No. 1 we raise the end of the conductor over tank No. 2, and it turns the honey into it. This is done by the man at the extractor by means of two cords, one attached at each end of the conductor. These cords pass up through the wall at the most convenient place for the man at the extractor, who can change the current of honey by loosening the cord for one end and tightening the one for the other.

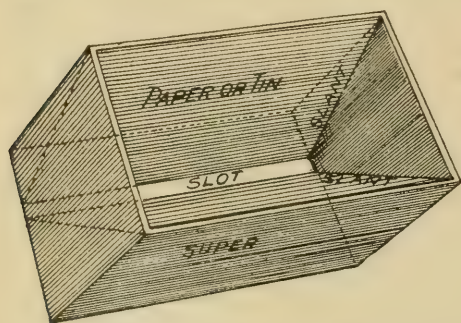
Cordele, Ga.

GETTING BEES OUT OF SUPERS WITHOUT A BEE-ESCAPE

BY C. A. BUNCH

Last season I used a simple device in taking off one and a half tons of honey for clearing supers of bees quickly, which does not demoralize the bees in the hives, but leaves them in fine condition to defend themselves.

The drawing makes the plan clear. I used a ten-frame full-depth super, and on the under side, $\frac{3}{4}$ -inch apart, I nailed two



square sticks in the center. Then I cut two thick pieces of wrapping paper, 8 inches long, which I tacked to the upper side of the super; then I brought the lower edge down and tacked it to the parallel square sticks, thus making a V-shaped arrangement with a narrow slot at the bottom.

I set this prepared super on an eight-frame super, and cleated both ends, which made it ready for use. When I am ready to take off honey I set the whole thing near the hive, remove a super and set it on the

cleaner (placing a robber-cloth over the hive if necessary). As I use loose hanging frames without spacing devices I loosen all of them with a screwdriver and slide them over toward the opposite side of the hive. Then with a head of broom corn I begin brushing the bees down without taking any frames out of the hive, pulling them over toward me as I get them clean of bees. When the bees strike the incline below they slide down and out of the slot into the eight-frame super before they can take wing, and most of them will be clustered below. There are cleats across the end of the super to furnish a grip for the hands, and I empty the bees out by lifting the super and giving it a sudden jar on the ground in front of the hive after all of the supers have been cleared of bees.

Of course I use some smoke at the time when I begin brushing. As soon as the nearest side of the first comb is free from bees I pull it over toward me, then brush the bees from the opposite side; then go to the next one, etc.

Lakeville, Ind.

HONEY-TANKS BELOW THE EXTRACTOR

Moving the Extractor from One to the Other

BY J. D. EVANS

My bee-house is 16 x 25 feet, and 7 feet high at the eaves. There is a stone wall under all. There are two floor levels, and at the south end 4 feet 6 inches lower than at the north end. A stone wall separates a hold-up of earth at the north end. Across the lower half is a plank bench on which six tanks holding 500 pounds each can be placed. This platform is two feet high, and leaves room for scales and a 60-lb. can into which the honey is run from the tanks. The extractors stand on the high level; and the honey, as fast as it is extracted, runs into the tanks, which are covered with cheese-cloth. This is all the straining required, as the honey is left in the tanks until they are required for the next extracting. I think a strainer in an extractor must be an abomination. When one tank is filled the extractor is moved to another place, and so on until all are filled.

My house has five windows—two in the west, two in the east, and one in the south gable. Two doors opposite each other are used. The yard is on the west of the bee-house, and the floor is level with the ground on that side. On the east side the land is about three feet lower than the doors, which makes it handy in loading the honey or taking in supplies.

I have a chimney on the north end, and a stove for melting wax or making feed. I have a floor 7 feet above the north floor, and one 9½ feet above the south floor. These floors do not quite meet in the middle; and as one is 2½ feet higher than the

than the occasional trips demanding service in the capacity of hauling bees.

Bees hauled in daylight would be safer if covered over with tarpaulin, or curtained down all around. A lighted smoker at hand will save time where a leak occurs.

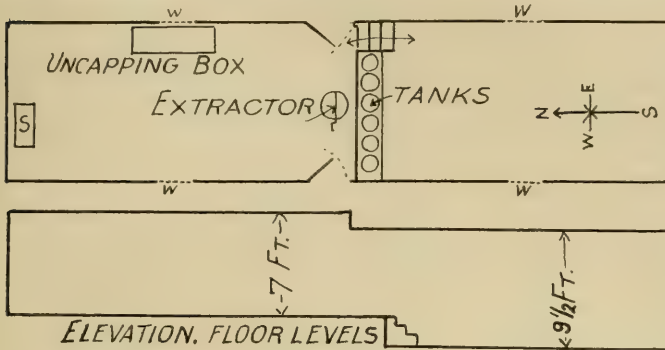
WINTERING REPORT.

I have just inspected 88 colonies of bees, and find some loss, owing to warm January (39 degrees average), followed by the severely cold weather the first half of February. Fifteen colonies were lost; twenty had to receive combs from heavy ones, of which there are still over 40 in first-class condition. Some colonies lost had considerable

brood and honey. Does water carried in for feeding cause extra exposure? or when brood is started and the cold weather prevents any more trips to the source of water supply, does loss result? We have water in a ditch ten feet from the hives. Temperature 65 degrees, no pollen; bees robbing and hunting honey where bees are dead.

Evansville, Ind.

[We do not know that we quite understand you when you ask, "Does water carried in for feeding cause extra exposure? We suppose that what you mean by this is, "Does the water carried in cause more brood-rearing, and does that extra brood-rearing require the bees to expand their cluster to a larger size?" Yes, in such a case a cold spell coming on would do damage to the cluster and to the brood. We do not think water is absolutely necessary for brood-rearing, because we have had a large amount of brood hatched in our cellars. Last winter some colonies began brood-rearing in December and January; and when we took them out on the 12th of March they were much stronger than when we put them in. The bees were bright and healthy. Certainly the bees in the cellar could get no water except what might have condensed under the hive-lids. At one of our cellars there was some condensation, for water stood in drops from some of the hive lids; but in the other cellar, where the temperature was higher, there was no condensation, but brood-rearing went on just the same from December to March 1.—Ed.]



other, with an ordinary step-ladder costing 75 cents there is no trouble in getting upstairs; and I can stand on the floor of the extracting part and hand up any thing I wish to the south upper floor; and when up I can pass it over to the north floor.

This house is bee-proof and mouse-proof, and the combs are stored in winter in the lower level, nine stories high. The upper floor south is cut back over the step so as to leave head room. The diagrams will illustrate this.

Islington, Ont., Feb. 1.

THE AUTO TRUCK FOR MIGRATORY BEE-KEEPING

BY W. W. VICKERY

There have been some inducements for migratory beekeeping in our river-bottom cornfields, where, by selection at favorable fall seasons, we command pasturage almost solid with vines and other honey-plants on 3000 to 4000 acres, all cornfields, every acre of which is honey-bearing.

The auto truck has been a quick and convenient way of moving bees to and from these fields, and it often saves two hours on a six-mile and return trip.

Hives should be bound with twine and securely screened, and, if moved at night, promptly after loading, are not apt to smother if properly ventilated. I would advise extra care in tying the load on firmly in addition to the wrapping of hives. The vibration and danger of bumps in the road would make stapling unsafe.

There has been a much greater test on our Reo truck in delivering groceries every day

Heads of Grain from Different Fields

Making Labels Stick on Tin; Beehive Scales for Recording the Honey-flow; Entrance-controllers; Bees vs. Cane Sugar for Bees

1. I have trouble in making the labels stick on the honey-pails. They always come off as soon as dry. Is there any preparation made that will make them stay?

2. Are the ten-frame hives made wider now so that we can use a division-board? With the ten-frame hives I now have it is almost impossible, especially in the fall, to get out the first frame.

3. I notice in my Swiss journal a scale made on purpose for beekeepers, and also entrance controllers. These platform scales would surely be much handier than the scales we have. The entrance-controllers made out of steel screwed on the hives and left on the year round would be much better than wooden blocks.

4. How much do you consider a colony of bees worth in a well-painted ten-frame hive in the early spring, having wired worker combs?

5. The past season I had a very unusual case with a young queen. While putting back the last frame I noticed the queen hanging on to a frame apparently dead. I picked her up, held her in my hands for about five minutes, when she commenced to show a little life; then in about five minutes more she commenced to take short breaths. Then I put her on top of a frame. The bees started to feed her, and in about ten minutes more she seemed to be all right. It certainly looked as if she had actually fainted. I am absolutely certain I did not hurt her while manipulating the frames. What do you think could have been the reason of her acting so strange? The bees were somewhat cross, and I had to smoke them considerably. Could it be that the young queen was so frightened by the smoke that she seemed just like dead? In my twenty years of beekeeping I have never seen any thing like it.

6. Recently I read in a farm paper that sugar syrup made from beet sugar, and fed to the bees, will kill them during the winter. Is there any truth in the above statement?

7. Do you consider the metal-spaced Hoffman frame superior to the regular Hoffman frame?

8. What reasons does Dr. Miller give for not painting his hives?

G. A. BARBISCH.

La Crescent, Minn., Jan. 21.

[1. It is very difficult to make labels stick upon tin unless the labels go clear around the tin package itself. You can purchase a dextrine that answers a very good purpose, 3 oz. for 5 cts.; ½ lb., 10 cts. Some have recommended using a little honey in connection with the dextrine.

2. The ten-frame hives are now made wider so as to take in the division-board the same as the old eight-frame hive used to do, and does yet, for that matter. We do not regard it as practicable to have contractible entrance-closers, as we believe that all such devices of that kind are a useless expense. An ordinary block with an opening on one side is very much cheaper than and quite as effective as contrivances that cost many times more.

3. Most of the spring-scale concerns in this country furnish good scales for platform work and for weighing hives of bees while the bees are gathering honey. You can secure such scales from your dealer in bee supplies.

4. The price of a colony of bees in a ten-frame hive will vary according to the season. In the early part of the year, in the spring, they are worth a great deal more than they are later on after the honey-flow is over. You can buy common bees, hybrids or common blacks, of the farmers, in box hives, for a very small sum of money. The bees

must be transferred and put into modern hives. After that they should be Italianized in order to bring them up to the standard of the bees sold by supply-dealers. Taking it all in all, cheap black bees are not very cheap in the end. Such colonies as you describe, if of good strength, should be worth about \$5.00. If nice Italians, \$10.00 to \$12.00.

5. From your general description here it is evident that the queen had what is called the "cramps." Very often a queen, if she has been handled or injured, or struck by a frame in removing it from the hive, will appear as if she were dead, and it will be some minutes before she recovers. The bees will hover around her, feed her some, and in the course of a few minutes she will be as lively as ever. We do not know just what is the difficulty; but we have always called it the cramps.

6. Our experience is that beet sugar is practically as good as cane sugar for feeding bees. We never make any distinction. We buy this sugar just as it is on the market, and we suppose a good percentage of it is beet sugar. No chemist is able to detect any difference, and we doubt if there is any.

7. Yes, we consider the metal-spaced Hoffman frames as very much superior to the ordinary wooden Hoffman frames. They are easier to handle, and are stronger.

8. Dr. Miller's main reason for not painting his hives is on the ground of economy. He said the hives will last as long as he can ever use them without the paint, and he doesn't see any reason why he should go to the extra expense of painting; but most beekeepers do not agree with him in this.—ED.]

A One-inch Hole Punched in the Upper Part of the Foundation to Give a Passageway to all the Combs

When I put brood foundation in wired frames I punch a hole one inch in diameter under the top wire. This gives the bees access to all the combs. Otherwise they would be compelled to go over the top-bar, under the frames, or around the sides of the frames, for their stores. It also gives the queen the same opportunity in brood-rearing. I have lost many colonies in years past when there was an abundance of honey in their hives, and I find the above plan is all right.

Conesus, N. Y., Jan. 8.

D. W. TRESCOTT.

[Holes left this way in the combs would be filled up with drone-cells and honey after a good honey-flow. Years ago it was the practice on the part of a few beekeepers to insert a tin tube about ½ inch in diameter in the center and near the top of the combs. The tube would not be as likely to be filled with comb as a similar hole without the tube.

It was thought at one time to be a good practice to cut holes in brood combs at the approach of winter; but it has been abandoned by almost all beekeepers, so far as we know, and in its stead has come the Hill device, or a space over the top of the brood combs, enabling the bees to pass back and forth over the top instead of through the combs. For the Langstroth frame, space on top is preferable to unsightly holes that do little or no good to the combs.—ED.]

Can the Doolittle System of Producing Comb Honey be Used in a Locality where there is no Late Flow?

I received a copy of "A Year's Work in an Out-apiary," by Doolittle. The plan looks good to me, as I am a farmer beekeeper with about 20 colonies and the minimum time to give them; but I do not have the extra frames of combs he uses at fruit

bloom. Could I use full sheets of foundation? and what would be my chances for success by using it?

Sometimes fruit bloom does not yield much nectar with us. Would it help matters to feed thin syrup, as per the Alexander plan? or do you consider the "millions of honey at our house" sufficient? Any other suggestions you will give would be thankfully received.

Auburn, Ind.

W. J. CARNAHAN.

[The Doolittle system of producing comb honey is more practicable in a locality where there is a late honey-flow. If you do not have such a flow you could not very well use it to advantage. It would not be practical to feed as you suggest, because a good deal of the honey in these combs that are held over from the previous season would go up into the sections; and, of course, ordinary syrup could not be used in that way without getting the producer in trouble with the State and national pure-food inspectors. You can, however, carry out the general principle by feeding the colonies up very strong the year previous, so that they have plenty of stores; but the plan of putting an extra set of combs filled with syrup over the top of the colony to make them "rich in stores" will not work, provided it is sugar syrup for the reason already mentioned.—ED.]

Feeding Soft A Sugar on Plates Made of Wire Cloth

Why so much discussion about feeding soft A sugar to bees in the cellar? If the colony is small the paper pie-plate can be used without fear that the condensed moisture will do any great harm. I take the covers off my hives when I put them in the cellar, and place a burlap sack over the hive. Now, I believe I can feed the bees by placing the sugar in plates made of window-screen (wire), and placing the dish over the tops of the frames and covering all with one or two sacks according to the strength of the colony. The bees can cluster under the sugar, and take it up without exposing themselves in any way.

Interlaken, N. Y., Feb. 17. JOHN T. GREENE.

[We believe it to be perfectly feasible to feed soft A sugar on wire-cloth trays or plates; but we wish to make the suggestion that the black wire cloth be used rather than that painted with green paint, as the latter would be poisonous. Where it is not practical to use the wire cloth the paper pie-plates can be used. The sugar should be placed in the plates, and then there should be a couple of cross-cleats placed over the top of the plates, so that, when the packing material is placed down over, the bees will be able to get at the food.

Mr. A. C. Miller expressed the fear in our columns recently that a paper pie-plate would become soaked with moisture and be utterly useless. We do not find this to be the case. Notwithstanding that, in some of our colonies, there is considerable dampness, the plates hold their shape perfectly.—ED.]

Feeding Soft Sugar in Paper Pie-plates to Bees

I went over my bees yesterday, and found two swarms low in stores. I took a paper pie-plate and cut slits in the bottom and set this on top of the frames. I cut slits in the bottom to allow the bees free access to the same. I then filled this pie-plate with soft A sugar, and pressed another pie-plate down over it, bottom side up of course. Over this I put a newspaper and then the chaff-bag. I treated two colonies in this way. I believe this sugar packed in this way will stay in shape as well as candy will. Certainly it will after absorbing moisture from the bees. If this moisture soaks up the plate so as to make it soft and pulpy, it will be all the better

for the bees. The plate will then have served its purpose, and will be easily gnawed away by the bees. When this sugar is gone I will repeat the operation with new plates. Two plates put together this way will hold one pound of sugar. If you would like to know how this scheme works out I shall take pleasure in giving you an accurate account of it.

Stillwater, N. Y., Feb. 9. ROBT W. SCOTT.

[We believe the plan of using paper pie-plates as outlined here by our correspondent to be a good one, although if there is a slit or slits in the bottom of the plate it might be better to use something like ordinary queen-cage candy, made by mixing powdered sugar and honey into a stiff dough. We shall be glad to have our correspondent tell us of the success of this method of feeding this coming spring.—ED.]

Feeding Soft Moist Sugar Direct; who First Used it?

Referring to GLEANINGS, Feb. 1, p. 81, Mr. A. C. Miller says he thinks that the credit of feeding sugar to colonies of bees should be given to Samuel Simmins. I may say that I was visiting an uncle at Withersfield, Suffolk, England, in 1852 or '3, and he had bees in straw skeps. I remember seeing him feed them sugar (then called brown or moist sugar). He fed them in a tube made of the common alder wood with the pith removed and the top split out so it was in the shape of an inverted horseshoe, and inserted it in the entrance at the back of the hives. I do not know, but would suppose that feeding moist sugar to bees was a common practice in England 60 years back, as at that time I was 10 years old; and if all is well I shall be 70 next April; but I remember this circumstance.

St. Louis, Mo., Feb. 10. CHAS. W. COLLETT.

[The feeding of brown sugar or moist sugar to bees is a very old idea; but whether any one, however, has ever fed a coffee A sugar before that recommended by Mr. Simmins we do not know.—ED.]

Wiring, and Alfalfa in Ontario; Timber for Hives

1. Is it practicable to do the wiring when nailing frames together in winter, and put in the foundation as needed?

2. Is alfalfa considered of any value as a honey-yielder in Old Ontario? It is no good in New Ontario.

3. What is the objection to spruce and poplar lumber for hives?

Slate River, Ont., Can., Jan. 22. J. M. MUNRO.

[1. It is the usual custom to nail or put together frames during the winter time, wire them, and put in the foundation at the same time. We see no reason why you should put in the foundation only as fast as you need it. If you have it in stock it should all be put in at one time. During the busy rush of the season you can not afford to take the time to put foundation on the wires.

2. In most of the territory east of the Mississippi River, alfalfa does not yield honey to any considerable extent. We are not able to give you any opinion concerning its relative honey value in Old and New Ontario.

3. Spruce is a very good lumber, but rather narrow, and rather too tough and hard for the purpose of making hives. Poplar is too much inclined to warp and twist. There is no timber in the world that is altogether the equal of ordinary white pine, such as is found in Michigan and Canada. The redwood of California makes a very excellent substitute, however; but it has the objection that it splits very readily, and is not suitable for making the inside fixthres; but it will stand the weather much better than pine.—ED.]

Poisonous Spray During the Blooming Season Injurious to Trees as well as to Bees

I was invited to make an address at the State horticultural meeting of Missouri, held in 1906 at Moberly; and while at that meeting I had the endorsement of some of the very best horticulturists present, that to spray with poisonous ingredients during blooming time would destroy the prospect for fruit on trees so sprayed. Mr. J. C. Evans, who had been the president of the society for more than 20 years, and a man of very large orchard interest and experience in spraying, stated that he had tried it most thoroughly during the blooming period, and he was entirely satisfied that it would kill the prospects for fruit.

One man having extensive orchard interests had sent in a paper to be read at that meeting, and in it stated that he did not know any reason why he should not spray during blooming time, as he considered his orchard interests worth more than all the bees around him, but also stated in his paper that he had sprayed during blooming time; but for some reason to him unknown his trees had set but very little fruit.

Mexico, Mo., Mar. 22.

J. W. ROUSE.

Fruit-men Borrow Bees to Place in their Orchards During the Blooming Season

I am located right in the middle of the peach region; and at first, when the tree-spraying began, I had some trouble, and had to distribute some of your free literature about spraying to show the fruit-men their folly.

It may be interesting to you to learn that now the fruit-growers so value the bees in connection with the fruit-bloom that they borrow my bees, and carry them to their orchards, and bring them back when the bloom is over.

The spraying of peach trees is done just before the blossoms begin to swell to any size—about two or three weeks before opening; but in case they fail to get it done at the right time they prefer to put it off rather than to do it when the trees are in bloom.

Port Clinton, Mar. 28.

JULIUS JOHANNSEN.

Bees Brought Pear Blight

If you see the fool-killer, send him out here. The ranchers sprayed their trees with a strong solution of arsenate of lead for codling moth, and it burned the tender twigs where they used high pressure on the blooms before the petals had dropped off, and the wise fruit inspector told them it was "pear blight" packed there by the bees during bloom. His argument was convincing, for there was the dead bloom; also the dead limb.

Walla Walla, Wash.

C. A. MCCARTY.

How to Color Queens Red

As to your question in GLEANINGS, Jan. 1, 1913, under Stray Straws, regarding the marking of a queen red so that the coloring won't come off within six years, I can tell how it is done in my native country, Switzerland. I don't know, however, from what the coloring matter is made. It can be bought out there by nearly every queen-breeder or supply dealer. It is a fast-drying varnish. Before using it, stir it well. It should not be too thick nor too thin. Otherwise it will not stay on, and will spread. Put the queen under one of those marking-nets made of mosquito-netting, or from an old veil, to keep her quiet. Put a little of the coloring matter on a small sharp wooden stick, and rub it lightly on the back of the queen's breast where it will dry quickly. Then remove the netting.

Highland, Ill., Jan. 6.

XAVIER WIDMER.

Heating Honey Before it Granulates

There is an article in the *Review* for January, by Virgil Sires, North Yakima, Wash., on his process of heating honey as it leaves the extractor, and wherein he claims that honey heated then will keep liquid longer than when allowed to candy first. Now, this is vital to our business. I should like to see the matter discussed in GLEANINGS. Who else so believes and does it? Who knows it is true? Who has a process to heat honey just right to keep clear, and not materially impair the flavor?

Utica, Ill., Jan. 31.

A. MOTTAZ.

[Occasionally, when granulated honey is liquefied, certain parts of the honey are not reduced entirely to the liquid form, owing to the distribution of heat having been faulty. This possibly accounts for the belief that honey which has been heated before it granulates remains liquid longer than if it is heated after granulation, for it is a well-known fact that, if the honey is not entirely liquefied—that is, if there is any portion of it still somewhat cloudy, owing to minute crystals, that honey will granulate again in a very short time; whereas if all traces of crystallization were removed, further granulation would be postponed a much longer time. We do not know that this accounts for the belief expressed by Mr. Sires, but offer it merely as a suggestion. In this connection see the statement by V. V. Dexter, p. 219.—Ed.]

One who Does Not Like Autos

I am glad you issued your automobile number on April 1, 1912. It was the biggest April-fool number I ever saw, and I have taken GLEANINGS for years. I believe you believe in temperance. So do I. I believe you do all you can to fight the liquor traffic. So do I. But I want to tell you that the autos and motor-cycles are a worse curse to the rural population than the liquor-traffic. Some people tell us the auto has come to stay. I tell them that the Devil has come to stay too, and that the day is coming when the Devil and the autos and a good many people who own them and run them will all be in one place, and they will be there to stay.

St. Anns, Ont., Feb. 4.

HERBERT FREAS.

[You have a perfect right to your opinion in regard to automobiles; but there are hundreds of beekeepers in this country alone who own them, and who would hardly know how to get along without them now. The day has passed when automobiles, at least those which are moderate in price, and which are used for business as well as pleasure, are considered only as expensive luxuries.

In regard to the April-fool number of last year that you refer to, we received one other letter from a beekeeper who did not like that number. Since its appearance, however, we have received so many letters of appreciation from others of our readers that we have kept no record of them. We can not expect to please all of our readers all of the time. We know that for a time last year there was scarcely a day that did not bring one or more letters of appreciation for that automobile number, and requests for another one this year.—Ed.]

A Side-hill Facing East for Bees

I have had no experience, but think my present location suitable. It is on a side-hill facing east—rocky ground, and somewhat wooded. Will you advise me as to the suitability of the location?

Mt. Hope, N. Y.

WM. EDWARDS.

[The location, apparently, would be a good one. We prefer to have the bees screened from the prevailing winds; and it is also a good idea to have the apiary or the hives located in some low shrubbery, both for the purpose of shade and to protect the bees against heavy blasts of wind. This is very important in the matter of wintering.—Ed.]

Our Homes

A. I. ROOT

(A sequel to the *Home papers* of Feb. 1.)

Go ye into all the world and preach the gospel to every creature.—MARK 16:15.

But seek ye first the kingdom of God and his righteousness, and all these things shall be added unto you.—MATTHEW 6:33.

O thou of little faith! wherefore didst thou doubt? —MATTHEW 14:31.

I have been reminded that in my *Home paper* of February 1 I omitted, or touched on very lightly, one great reason why the circulation of *GLEANINGS* was increased so rapidly at the start. By request I will briefly go over the points I omitted. Just a few days after I came out publicly for Christ Jesus, our good pastor, the Rev. A. T. Reed, came into my store one day and said something like this: "Mr. Root, there is to be a missionary meeting next Sunday evening, and I want you to take charge and talk to the people." I replied to my good friend (for *then* I was ready to do almost any thing in the world for him) that I was sorry to say I had very little acquaintance with missionary work; furthermore, that I had very little sympathy for or interest in it. He, however, said he would lend me a book about the Sandwich Islands, and I could read the book between then and Sunday, and then he was sure I could give them a talk on it. I again protested gently, saying that the subject of missionary work had always been exceedingly dry and uninteresting to me; and if there was any thing in particular that made me feel sleepy it was a talk about the *Sandwich Islands*. He laughed, and (I think) replied that perhaps I would see things *now* in a light different from what I had formerly. I have forgotten now the title of the book, but it was a history of the work of the Rev. Mr. Gulick, one of the early missionaries to the Sandwich Islands. As I was a very busy man at that period of my life, not only through the day time but often well along into the night I was wondering how I should get time to read that book before Sunday night came. However, I carried the book home and laughingly told Mrs. Root that I had promised to read it during the week. I looked over in the back part to see how many pages there were, divided up, and said something like this: "Sue, I shall have to read so many pages Monday night, so many Tuesday night, and so on until I get up to Saturday night." Accordingly on Monday night I arranged my work so as to get home a little earlier, and went for the book to read the allotted portion laid out. When it came bedtime Mrs. Root suggested that it was time to go to bed; but I replied

that I rather *liked* the book, after all, and did not want to go just yet. Pretty soon, said she, "Why, you have gone away past the part you had marked out to read Monday night. Hadn't you better come to bed?"

I think it was well on toward midnight before I was contented to let the book drop; and I had not only read it through long before Sunday night came, but read parts of it again and again. It was not only a revelation to me, but a *wonderful* revelation, as to what missionaries had done in the way of opening up business in foreign lands and the islands of the sea, aside from the work of converting savages and cannibals and teaching the gospel.

As it was pretty well known in our community at the time that I had been heretofore more or less in sympathy with skepticism and infidelity, quite a turnout to my talk that evening was the consequence. I not only occupied an hour talking about the Sandwich Islands and missionary work all over the world, but I hadn't got half through with my story when the hour was up. The result was, the prophecy of my good mother came at least partly true at this time of my life. I not only hunted up every thing I could get hold of in regard to the foreign mission work throughout the world, but I talked with friends who had relatives in foreign lands, and finally got so full of the idea of "spreading the gospel" that I announced in the next issue of our then very young (and small) bee journal that, if the friends who had relatives or acquaintances in missionary work in foreign lands would send me their names and addresses I would send them our little monthly, *GLEANINGS IN BEE CULTURE*, free of charge for as long as they cared to read it. Now, here came one of my first "happy surprises." I was so little posted in regard to foreign missions that I did not suppose there were more than a dozen or two all over the face of the earth, including the islands of the sea; but when applications came from far and near, and letters of sympathy with the work I had undertaken, I was greatly surprised. One of our faithful clerks remarked to me about this time (the one who opened the mail), "Mr. Root, I fear you have been a little reckless. There are not only many more missionaries in the world than you supposed, but the postage on most of the journals will be twenty-four cents a year, and on some of them forty-eight cents a year. Hadn't you better recall your offer in the next issue?"

My reply was something like this:

"My good friend, don't worry about the number of GLEANINGS that are going at our expense to foreign missions. The great Father above will furnish the stamps, I am sure."

In a little time we had kind letters from almost every part of the world, and these good friends told me about the bees and bee culture in their locality. I distinctly remember one missionary who said something like this: "Mr. Root, your little bee journal has been a Godsend to me and the natives here. I had been for some time past praying and studying over the matter of how I should find something to enlist their interest and attention so I could get better in touch with them. By the directions contained in your little journal I succeeded in making a movable-frame hive; had captured some bees, and finally announced to the natives that I would take a hive all to pieces and show them the work of the bees, and point out the queen, etc."

"Now, this little object lesson proved to be more entertaining and instructive than any thing else I had ever been able to get hold of, brought from civilization. May God speed you in your good work."

From that time to this we have had more or less pleasant relations with missionaries and the missionary work in foreign lands. The great Father above *has* furnished the "postage stamps;" and not only that, he has opened up trade and commerce in hives and hive fixtures all over the world in a way that could not have been done otherwise. In fact, orders came right along from foreign countries in languages that we know so little about that we have an interpreter in New York, besides a pretty fair interpreter here in our own office, to read and translate orders from foreign lands in different languages spoken throughout the world.

Another of the texts that I have given above has been abundantly verified: "Seek ye first the kingdom of God and his righteousness, and all these things shall be added unto you."

Now let me pause a minute to ask you what the consequences would have been had I, as so many of us often do, refused to accede to the request of my good pastor. Somebody asks you to teach a class in Sunday-school or to take charge of a Bible class, or to lead a prayer meeting or something of that sort. You (or *we*) forgetting the abundant Bible promises, make the excuse that we are not posted, or we are not adapted for that class of work, or perhaps that we are not "built that way," so neg-

lect the opportunity. How much should I have lost if I had assured dear brother Reed that I was *totally incompetent* (which was true) to lead a missionary meeting, instead of taking the book, as he requested, and looking into it with eyes that were *no longer blind* to the words that God has sent us. The injunction to go into all the world and preach the gospel seems to me to belong not only to *ministers* but to every creature who has found "the Lamb of God who taketh away the sin of the world." The responsibility rests upon our shoulders to redeem the world, not only from cannibalism and other sins, but to redeem *our own nation* from the dangers that are coming to beset more and more its people.

Not only is our journal now going regularly to every spot on the earth where missionary work is going on, but it is taken regularly by great numbers of people who do not speak our language at all, and many of them can not read it at all.* They look at the pictures and hunt up somebody who is conversant with our language, and capable of giving them some kind of interpretation, and in this way keep in touch with your humble servant and what he has to say in these Home papers.

May God bless this little story, and help many another brother and sister to heed that closing little text, "O ye of little faith! wherefore didst thou doubt?"

* One of the pleasantest acquaintances of my life was a young man in Cuba who knew as little of English as I knew of Spanish; yet we had the A B C book and also took GLEANINGS. We went off on a trip, and were alone together the greater part of the day except the A B C, which he carried along. How we did laugh and "chatter"! The Holy Spirit, which filled both our hearts (for he was a young convert), bridged over the lack of a language common to both of us.

THE VOICE OF THE PEOPLE TRIUMPHANT OVER THE PRESIDENT'S VETO.

We clip the following from the front page of that godly paper, *The Union Signal*:

GREATEST NATIONAL PROHIBITION VICTORY EVER WON.

The veto of President Taft of the Kenyon-Webb bill has been overridden by both houses of Congress. On February 28, the Senate, by a vote of 63 to 21, repassed the measure, and, on March 1, the House of Representatives, by a vote of 244 to 95, took similar action.

When the news came of the victory I said, "May God be praised for having heard and answered our prayers;" but the following from that same front page of *The Union Signal* expresses my feelings so much better I give it also:

I thank God I have lived to see the day when the representatives of the American people will answer

on the roll call with their votes, the entreaties and imploring prayers of millions of country-serving, God-fearing, home-loving men and women. This day, O men, we who hold high station can dedicate one vote to liberty, country, God, and home, and rededicate the Constitution to the people, and withdraw it for ever as a bulwark for that conglomeration of cormorants whod ebauch manhood, slaughter womanhood, butcher childhood, and crucify baby-

hood on 'he cross of alcohol.—*Representative Roddenberry, of Georgia.*

God grant this may be only the beginning of "overriding" the voice of one man who happens to fill a great office; and may it prove a lesson and a check on these same "great men" who presume to ignore the demands of righteousness.

High-pressure Gardening

Whatsoever a man soweth, that shall be also reap.
—GAL. 6:7.

Dear friends, I believe that Mrs. Root has never given any thing, at least direct, to the columns of GLEANINGS; but I am going to give something that I got very straight from her just a short time ago. You may be a little surprised to know that her first talk is going to be on "high-pressure gardening." It came about in this way: A few days ago she went over to visit our near neighbors, Mr. Keller's people. Mr. Keller had just harvested a very fine crop of celery, and in going up to their home she passed very near the celery-field that had lately been cleared off. She noticed on the way quite a number of large fine stalks of a dark-green kind of celery that seemed to have been skipped and left standing in the field. When she got into the house, one of the first things was to inquire why these great beautiful roots of celery were left when the rest was all taken away. Mrs. Keller informed her that they were a sort of sport that didn't bleach out like the rest; and, as a rule, they were not worth taking care of, and so were allowed to stand in the field and go to waste. She said, furthermore, there had been considerable trouble in getting seed that would produce new French Golden Self-blanching celery without any sport or admixture of this dark green and comparatively worthless sort. In fact, one man, I think he was a newcomer, or, at least, new to the celery business, procured some seed that he supposed was all right, and planted several acres; but when it came harvest time so much of it was of this green variety that the crop was practically worthless—not worth harvesting, in fact. The poor fellow put up with his disappointment the best he could, cleared off his celery, and planted tomatoes. This, of course, was a year ago. When his tomatoes came to bear they were little bits of things, not larger than walnuts, and, in fact, he secured nothing, or practically nothing, worth harvesting in his whole field of tomatoes of several acres. As he had procured his celery seed and tomato seed of one and the same firm he ap-

plied to them for redress from his expensive loss. They, however, disclaimed all responsibility, and referred him to the clause in their catalog as follows:

While we exercise great care to have all seeds, bulbs, and plants pure and reliable, we do not give any warranty, express or implied. If the purchaser does not accept the goods on these terms and conditions, they must be returned at once, and the money that has been paid for the same will be returned. We can not afford knowingly to sell seeds doubtful as to vitality or purity. We test our seeds before sending out, and should they prove defective in germination or purity when properly planted and cultivated we will refill the order free or refund the price paid.

When she told me about it, I said, "Oh! that man wasn't posted." He ought not to have undertaken it—at least, he ought not to have undertaken to grow celery by the acre without having more practical experience. He should have purchased his celery seed the year before he wanted to use it, and then planted a small area, and, if the seed grew satisfactorily, use the same seed to grow his plants the next year, and the same with tomato seeds. He shouldn't have thought of setting tomato-plants by the acre until the seed had been thoroughly tested the year previous, and until he *knew* it was exactly what he wanted.

I gave her this advice thinking that I was able to supply a great amount of wisdom, and that, if they had only applied to me, how much could have been saved.

After dictating the foregoing I concluded that I had better go over and see my good neighbor Rood, who has several acres of beautiful celery almost ready for market, and his celery seems to be comparatively free from these worthless sports of green stalks. Now, just listen.

Practically speaking, it is true that "whatsoever a man soweth, that also he may reap;" but Mr. Rood, I am very glad to say, was able to give me a piece of information that makes it possible to grow a crop very much *better* than the seed which was sown. So it isn't always true that "whatsoever a man soweth he shall surely reap." Now, while giving you this great secret in regard to growing celery, and perhaps many other crops, I am going to illus-

trate another point that I have long had in mind; and that is, that people coming down here from the North, and thinking that they can help out in the garden or fields, and earn fair wages—say wages comparing favorably with our expert colored men—such people are usually greatly mistaken in their estimate of their own powers. Now, here is the important feature. First, get the very best seed you can buy. Mr. Rood has been buying seed from several great seedsmen of the North for years; and, as a rule, when he pays the price for their very best seed—say \$15 or \$20 a pound for the kind of celery seed that is sown here in Florida—he is pretty sure of a fair grade of seed. I asked him if he had any objections to my giving the names of the seedsmen who furnished him his seed. He replied something like this: “Mr. Root, the man or seedsman who furnished me the best celery seed a year ago may not be able to furnish some equally good this year, and *vice versa*; but I will tell you what we do. When the little plants in the seed-bed have got big enough to distinguish clearly between the true and the green or worthless plants, we have expert colored men go through the seed-beds and weed out all of these objectionable plants. In that way, even if our seed is comparatively bad we can get almost a perfect stand of the genuine French Golden Self-blanching celery.

Now, here comes in the point I am speaking of. A year ago a white man came down from the North and applied for work in the gardens. He supposed, of course, that he could do any thing that the colored men did about as well as and perhaps a little better than what they did. So Mr. Rood set him to work, after explaining carefully what was to be done in weeding out the objectionable celery-plants. The man worked, I believe, one day or a part of a day, and perhaps was disappointed in regard to the amount of pay he received. Mr. Rood said he would have saved fully \$10.00 if he had let the experienced colored men stick to their job instead of giving this man a chance to work in the garden even a part of a day. Therefore, take great care, not only in regard to the seed you sow, but in regard to the plants you set out in the field *after* they are grown in the seed-bed.

Most of the celery seed used in this region is imported from France. I asked Mr. Rood if it wasn't possible for us to grow as good seed here in America as they get imported. He said that so far it didn't seem possible to get as good seed grown here, although California has given us some celery seed that compares well with the best

French imported. Since then I notice our new seed catalogs advertise California seed, and declare it is as free as any of the French from the worthless green sports.

Since dictating the above I have interviewed my neighbor, Mr. Keller. Let me explain a little. Mr. Keller had not been as successful a celery-grower as my neighbor Rood and some others. During the past summer, however, he spent quite a little time and money in getting proper tiles and thoroughly underdraining his piece of about two acres; and the result is, he has had very much better success than he has ever had heretofore. Even our Florida sand needs thorough underdraining to get the best results, especially after such an extremely wet season as we had in 1912. Well, he sold his celery for \$2.40 a box. As nearly as we could figure it, he got about \$1200 for the celery on a single acre; but I suggested that he had to pay freight out of this, and he said, “Not at all.” A New York man came and looked at his celery, and made him an offer and paid him spot cash right there on the ground at \$2.40 a box. When I asked about the fertilizer, he said that the fertilizer cost him perhaps a little over \$100 an acre. But what does this amount to when the crop is sold right on the ground for \$1200?

My neighbor Rood is just now harvesting the finest crop of celery he ever grew. He, also, most thoroughly underdrained his land before he commenced growing celery; and the quality of his celery is considerably ahead of that of neighbor Keller, and he probably gets better prices than those mentioned. He said that he applied about three tons per acre of a fertilizer that cost about \$40.00 a ton; but I think some of his land would give a yield of very close to \$2000 per acre.

Let me digress right here to answer a great number of inquiries as to how much a man can make to come down here and grow celery, grapefruit, etc. Now, I can't answer such questions. And I might safely say the man who asks it will rarely be able to make any great result. It takes a practiced expert to grow celery; and I think likely it takes a practical expert to grow grapefruit also; and these men who have learned the knack usually make a good thing of it year after year; but it doesn't follow at all that a green hand, or somebody who has failed in almost every thing else, can come down here and “get rich” growing stuff in Florida. Let me give you an illustration.

Another neighbor, who is fairly successful with truck gardening, last year did so

poorly in growing celery that he started this year to give it up, and he has been working out by the day at painting, his regular trade. As a consequence of the terrible freeze in California this year, celery, oranges, grapefruit, and many other things are "way up" in price. If this neighbor of mine, who became discouraged, and gave it up, had kept right on growing celery he would be out of debt now, and perhaps had money in the bank. You can see from this that the successful gardener must take the seasons, conditions, etc., as they come. Sometimes he hits it just right, and again he doesn't; and the proper way for him is to keep right on at his chosen occupation, and he will eventually succeed.

Just a word more in regard to this choice celery seed. I see this seed quoted in the catalogs all the way from 15 to 25 dollars per pound; and very likely the best is the cheapest. What does the cost of the seed amount to when the crop sells for something like between one and two thousand dollars per acre?

SOMETHING ABOUT APPLES.

My first package by parcel post was three enormous and delicious apples, sent by Stark Bros. Nurseries and Orchard Co., Louisiana, Mo., by the request of our good friend S. W. Morrison.

I asked Stark Brothers to send you specimens of Stark's Delicious. I have eaten them for four years and pronounce it the best winter apple in the world; good from Feb. 1 to April 1.

Oxford, Col., Jan. 20. DR. S. W. MORRISON.

There were three apples in the package sent by Mr. M., of immense size, and they are certainly "delicious"—at least the one I sampled was. If there was any fault with it, perhaps it was rather too much on the sweet order for my taste. Stark Bros. tell us that the tree is a very thrifty grower, and bears at an unusually early age. The apples came to me just a little after New Year's day; and in order to test their keeping I am holding two of them yet. Although we have had the warmest spell, perhaps, during the month of January here in Florida for years past, the two remaining apples are keeping, up to this date, Mar. 3, in perfect order, while other good apples in the same box all decay. It seems to me if all that is said in regard to this most beautiful and luscious apple is true it certainly is an acquisition indeed. We may well call it one of God's new and greatest gifts to the children of men. The apple is so large that one of them makes a large "supper" indeed for myself. The trees are offered at the very reasonable price of only 40 cts. each by the single tree. When they are ordered by the

tens or hundreds the price is quite reasonable indeed. We are hoping that parcel post may do great things in the way of furnishing an apple-loving people with an abundance of apples at a reasonable price, making a short cut from the producer, where apples are often allowed to go to waste because there is no paying market for them, to the consumer, and especially the children. The *Rural New-Yorker* has been for years talking about more apples and better apples for the health of our people, and I believe they have started what has been called the "Apple Consumers' League." May God be praised for our beautiful luscious and health-giving apples that now ought to be in great plenty all over the face of the earth. Especially let us try to make it possible for the growing children to have all the apples they care for, without stint and without extravagant price.

Here is something additional in regard to the Delicious apple, clipped from the *Rural New-Yorker*:

Next to the King David stood a tree of the Delicious, of the same age, and it bore just two specimens. This is no great disparagement, however, for I know the Delicious to be a heavy bearer, and the tree is beautiful in its vigorous growth, with clean bark and strong shapely top. A friend who has several trees tells me that they are regular bearers, and that he has customers who make him special offers of \$6.00 per barrel for their private family use. So far as I can learn the Delicious will take its place as a permanent addition to our standard lists, though the assertion that its quality is unexcelled by any other apple requires modifying. I have seen people of cultured taste who, when not told the variety they were testing give it second place to Stayman Wine-sap. Both kinds were fine specimens from Pacific-slope orchards.

DASHEEN AT BROOKSVILLE, FLA.; FROM BROOKS-VILLE BOARD OF TRADE.

Mr. A. I. Root:—Your favor of February 1 to Mrs. R. J. Crather, of this place, has been referred to the undersigned for answer, and in reply thereto I will say that we take great pleasure in giving you some data concerning what we regard as the most remarkable root vegetable in this country.

About eight years ago the Department of Agriculture, Washington, D. C., began experiments in propagating the dasheen. They had discovered it in Japan, where it was considered more popular than either the Irish or sweet potato. The Japanese had imported it from Trinidad Island, north of South America; and, although they had never propagated it to any great extent, yet the best families of Japan were cultivating it in patches not more than fifteen feet square.

When the experts of the Department of Agriculture discovered that the dasheen contains about ten per cent more starch, and from fifty to seventy per cent more protein than the potato, they concluded that it was worth trying. Some of the tubers were brought to Washington and propagated under hot-house methods, where the results were favorable, and the tuber was then given a trial in various States, including Maryland, North Carolina, South Carolina, and others, and northern Florida, but without satisfactory results, as they could not make a good tuber.

The department was about to abandon the propagation of dasheens when Dr. Hood, of Orange City, Fla., suggested that the dasheen be given a trial in the *Brooksville* hammock-land district. That was three years ago. They began here on the government farm with twenty-four varieties secured from Japan, Trinidad Island, Porto Rico, and Cuba. The results were more than satisfactory. The second year, by advertising in many foreign countries they increased the number of varieties to fifty-eight, and this year they had *one hundred and seventy-four*. Out of all these the department found five or six varieties which they considered of especial value as human food.

This year they had seven acres planted in dasheens, that had been tested for two years, and the yield was over *3500 bushels*. The Department distributed the edible sizes to various hotels in the North and East, and the seed sizes all over the southern States, so as to give everybody a chance to try them; but we do not expect favorable results from any locality outside of southern Florida, and that, too, on heavy hammock land. In northern Florida and States north, the seasons are too short, as it requires about eight months for the dasheen to mature.

The tests made here in both hammock and pine land show that the hammock land yields from 500 to 800 bushels per acre, while on pine land the tuber can not be raised on a commercial basis at all. The Department, therefore, has made arrangements to have quite a large acreage planted here this year so as to be able to take care of the demands for next winter.

As to the qualities of dasheens, they are most remarkable. After being planted they do not come through the ground for about three weeks; but if banked up with sand when they come up, they can be blanched the same as celery, and will grow from twelve to fourteen inches high *in as many days*. Remove the sand and cut the tender tips, and they may be used instead of asparagus tips or mushrooms. This product has been tested at the New Willard hotel, Washington, the chef of which declares that they are superior to either asparagus tips or mushrooms. It will make eight growths of this kind every season—one growth every twelve days. After the last cutting for this purpose, and the tips get to be from three to four feet tall, the stalks can be used instead of rhubarb or pie plant for pie-filler, and are better than rhubarb in the absence of any acidity or acidity. Certain varieties may be grown for greens which may be made from the leaves minus the ribs.

Now as to the tubers. They may be served in any style that potatoes, either Irish or sweet, may. At the base of the plant is a large tuber called a corm. This corm is too large to be served as an edible on the table, but may be sliced, evaporated, and ground up into flour. Of this flour can be made any thing that can be made of wheat or rye flour, such as bread, doughnuts, cakes, or pie crust; in fact, you can make the crust out of the flour, and make the filling of the pie out of the stalk or the rhubarb.

Dr. Hood, of Orange City, states that, served as pancakes, they are superior in every respect. He has found that persons suffering with indigestion can eat three or four dasheen pancakes, whereas half of one of the other kind of pancakes would cause pain.

The dasheen is very popular in Brooksville and vicinity. A year ago we opened the Varnada hotel with a dasheen banquet. There were one hundred guests present, and every one of them testified that the dasheen was superior to any thing ever eaten in that line. Since then we have had served by Mr. Gomme, superintendent of the government farm here, an entire meal made of dasheens and its various by-products.

Being rich in starch and protein the dasheen may be used for stock feed. In fact, both hogs and cattle will eat the tuber before they will eat any other kind of root vegetable, and they grow fat more rapidly on dasheens than on any other kind of vegetable. If they should never make any thing of the dasheen for human food it would be worth the cost of propagation for cattle and hog feed alone.

The prospects are that we shall have from 35 to 50 acres planted in dasheens this year in Brooksville section; and as the government has released four varieties which they have tested, there will be several parties here with a sufficient amount of dasheens to supply any probable demand the coming year.

You will note that we have indicated a use for every part of the dasheen, stalk and tuber, excepting the ribs of the leaves, which must be removed when they are used for greens; but the department at Washington has discovered that there may be distilled from the leaves a very rare fluid, something like that distilled from the century plant, which is known as "punkha."

From tests being made now, the best chefs of the best hotels in the large cities, and also by several scientific men, we are encouraged to believe that the dasheen has a great future; and it has already replaced the Irish and sweet potato in many homes in this district.

Trusting this information may be of benefit to you, and soliciting your further correspondence in case you desire any further information along this line, we remain

Yours very truly,
BROOKSVILLE BOARD OF TRADE,
per C. H. Freas, Sec.

Brooksville, Fla., Feb. 11.

My dasheens are now coming up, and some of them are putting out the second leaves. They very much resemble, so far, a calla lily, and are now (March 1) growing very rapidly.

MORE ABOUT DASHEEN.

Experiments have been conducted with the dasheen, both in Washington and Brooksville, which demonstrate that it is a most wonderful vegetable, capable of furnishing the raw material for a great variety of dishes. As the new growths come through the ground the stalks may be blanched like celery, and cooked and served as mushrooms and asparagus tips. Later the leaves of certain varieties, minus the ribs, may be served as greens, and the stalks as sauce and pie filling, which are said to be superior to rhubarb for those purposes. Thus the entire stalk and leaf, excepting the ribs, yield food for man; and even the ribs of the plant are not valueless, for from their juices may be distilled a most precious liquor known in local parlance as aroid punch, but to the men of science as something akin to the liquor obtained from the century plant.

Brooksville people have been favored with several packages of Mr. Spawn's evaporated products and his flour, especially the dasheen flour, the raw material of which is produced in Brooksville, and they will welcome the announcement that this place is scheduled to become the home of a plant similar to the one at Kissimmee.

As the experts of the Department of Agriculture, Washington, D. C., are conducting experiments which will determine the relative value of the dasheen as a food product, and since the crop here, comprising eleven acres, is still under their supervision, those who have never participated at a dasheen banquet will be compelled to accept amateur statistics and data on this subject until experts choose to publish the scientific facts.—*Tampa Tribune*.

Poultry Department

FORTY-EIGHT CHICKS FROM FIFTY EGGS IN A FIFTY-EGG INCUBATOR.

Some of the friends in times past have called me a bungler with poultry. I think it was the friend, however, whose scheme or "system" had been exposed. Well, I have been a bungler, and I don't know but I am a bungler somewhat yet; but this morning, this 11th day of February, 1913, I have taken forty-eight good strong chicks from fifty fertile eggs. Now, I might make it a little better than that, I think, when I explain that, in testing the eggs, there was one of the fifty that I threw out as doubtful. Let me tell you how I mark eggs that are doubtful. I just put a cross on the large end. If, after further testing, however, I found these crossed eggs are fertile after all, I put a circle around the cross, and that means the cross reads "naught" or "nothing." You may wonder how I get fifty fertile eggs in a fifty-egg incubator. I do it this way: For the first three days I stand them on the small end. In this way I can get sixty or sixty-one eggs in the average fifty-egg incubator. Of course, during the first three days these eggs can't be rolled around very much, as they stand on the small end. I think I have explained before that in this way I manage to have fifty fertile eggs, as a rule, to fill a fifty-egg incubator. Now, this report doesn't amount to very much unless I can do it again, and can show some of the rest of you how to manage to get equally good hatches. I am not sure that I can do this; but I can tell you briefly how I manage. It comes up like this—to *whom* or *where* does the credit belong? Is it to the man who furnished the incubator, or is it because of the favorable season, or because I have taken pains to have my eggs well and strongly fertilized? or has your humble servant some credit in the matter? I have explained before how I gave two males to my forty-eight laying hens. I told you when I started down to Florida that I was going to use an electric incubator; but when I got here I found out they hadn't got around to giving us a current for the whole twenty-four hours, so the electric incubator couldn't be used until somewhere near the first of February. As I didn't want to lose so much time I sent for one of the \$7.00 fifty-egg incubators made by the Buckeye Incubator Co., of Springfield, Ohio. I have taken out three hatches this winter with this machine before the one that has just now given such excellent results. I followed exactly the directions that came with the machine, with the exception of letting the

chickens all remain in the machine until the 22d day. I removed them just after dinner from the machine on the 21st day. They commenced coming out on the 20th, so that a greater part of them were nearly or quite twenty-four hours old when I took them out of the incubator. My reason for removing them a little sooner is this. Every time I take off a hatch I find a great quantity of fuzzy down, that has rubbed off from the chickens, down among the eggshells in the incubator. Sometimes there will be a good double handful of this down (especially where there is a large hatch) down in the bottom of the incubator. Now, I figure this must be somewhat of a loss, because chickens, especially when taken from the hot incubator, and placed right out almost in the open air, as I do here in Florida, need every bit of their feathery down to protect them from the breeze and the weather. As they seemed quite restless, and evidently in want of more air, I decided to take them out, as I told you, on the afternoon of the 21st day. Well, after taking out forty-four I discovered there were four more that were hardly ready to come out. One of them was just out of the shell, and three more were only partly out. One of the shells was just pipped. I dipped these partly hatched eggs in water about as hot as I could bear it with my hand, and then put them back in the incubator on a wet cloth wrung out. This was to supply what moisture or dampness was lost when the incubator door was opened. Now, I haven't very much faith in helping chickens out of their shells, although in one of my hatches I helped two out that seemed so feeble and in such bad shape that I had no hopes that they would ever live, or amount to any thing if they did live. However, I did the best I could with them, washing off the glue that had dried on to them with hot water, then putting them back in the incubator, and awaiting developments until next morning. The next morning they had improved so greatly that I kept them a little longer, and finally put them out with the rest of the hatch, intending to keep watch and put them back in the incubator if necessary. To my great surprise, however, after twenty-four hours had passed I had great difficulty in finding the two chickens that I helped out of the shells, and since then I have never been able to tell one from another. They are all just alike. This was a thirty-six chick hatch, and they are all alive and well now, just three weeks since they came out of the shell.

Now, as two of the chickens seemed to be

making very slow progress in breaking out of the shell in this last hatch, I struck on a plan that I believe will be a way as to be one of the best, if not *the* best, for chickens that do not succeed in getting out at the time the others do. I simply crush the shells with my fingers in such a way as to crack the outer shell pretty thoroughly. In the course of a few hours I had the pleasure of seeing those chickens out of the shell and on their feet. Some one may suggest that getting chickens hatched and bringing them to maturity is a different thing. But I want to tell you that I haven't lost a chick that I know of this winter, except six that were carried off by hawks before I found out exactly where my chickens were going. The hawk has been fenced out by covering my two small yards for the smallest chickens with three-inch poultry netting, as I have explained. Since then not a chicken has been lost. Every chick that is hatched goes right along without a break.

COUNTING CHICKENS "AFTER" THEY ARE HATCHED.

A good deal has been said about counting your chickens *before* they are hatched; but, so far as I know, not very much about counting them *after* they are hatched. Some of our readers, and perhaps not a few of them, have had some trying experience in trying to count them after they are hatched, and having the count hold out. When I started our convergent poultry-yard I thought I was going to have a "dead open and shut" on keeping my chicks, especially in keeping them free of loss from rats, skunks, coons, etc. I have told you something about the poor fertility of our eggs when I first moved them over to our home. There were two troubles about the fertility. First, most of the hens are just out of the moult, and the rooster himself was going around destitute of tail feathers. Secondly, he had toward fifty hens in his care. One of these hatches at this time gave only sixteen chickens in a fifty-egg incubator. Now, there would not have been even *sixteen* had I not helped two of them out of the shells. These two were such dilapidated-looking specimens that I had very little hope they would live. I put them back in the incubator (mostly because I hated to kill the poor little things), and kept them there twenty-four hours. Then when I put them in the fireless brooder, and they moped around about twenty-four hours more, I felt *sure* they were going to die. However, greatly to my surprise, on the third day they began to pick up, and in less than a week I could not tell which were the ones I hatched from

the others. With these new poultry-yards so well protected with inch-mesh netting I felt sure no rats nor skunks could in any manner interfere with my chickens; and this little brood got on very well until they were about two weeks old, when one day I was obliged to admit that there were only *fifteen* instead of sixteen. Next day there were only fourteen, and so on, until a chicken a day was going *somewhere*. They counted all right at night, and they counted all right next morning; but when night came there would be a chicken missing. Wesley suggested it was a hawk; but I hadn't seen any hawks around, and I was very much puzzled and worried about it. Finally, Wesley caught a hawk right in the act, and made him let the chicken drop. The poor fellow, however, was so badly scared he died a few hours afterward. I finally declared I was going to do something to have a "dead open and shut" on a *hawk* as well as a dead open and shut on the rats and skunks. The question was, how to do it. Neighbor Abbott said he got rid of the hawks by shooting them with a gun. Now, this was a lot of trouble, and I don't like to use guns any way; and, besides that, you must keep on shooting day after day, and year after year. You never can tell when you have got *all* of the hawks. Two or three years ago, when the hawks started I invested in some three-inch-mesh poultry-netting, declaring that I was going to have covered yards for my small chickens, at least until they were old enough to keep out of the way of the hawks. Now, I don't like penning up chickens in small yards. Let me explain a little.

From the next hatch from my fifty-egg incubator, after the one I have mentioned, I secured thirty-six live chicks from fifty eggs. Well, these got along all right until they were about ten days old. Then there was one little bunt chicken that went around, or stood around, with its wings hanging down. You probably have seen them under like circumstances. I tried giving such chicks extra care, bread and milk, etc.; but so far it has been mostly a failure. Now, these thirty-six had been kept inside the brood-house until they were ten days old, because I feared the hawks that had been making such havoc with my other flock. Finally we got to work and covered two little yards overhead with three-inch netting. I think these little yards are about 40 feet square. In this yard that was covered overhead to keep out the hawks I opened the door and let my thirty-six chicks loose. This one with its wings drooping didn't seem inclined to go outdoors. Feel-

ing pretty sure he would die any way, I took and tossed him out.

Well, pretty soon the rest of the thirty-six had unearthed a lot of crickets that were under the dried-up hay and rubbish, chasing each other about the yard to see whom the crickets belonged to. This wakened up my droopy chick, and he got in the run with the rest. By night he was greatly improved. The next day he picked up still more. Now, instead of "going dead," it is a hard matter for me to tell which is the sick one from the rest. This chick, in my opinion, was dying because he didn't have sufficient sunlight and sufficient outdoor exercise, nor, perhaps, the variety of food that chickens need at this age, although we had been giving him chick food, a mash, beef scrap, charcoal, grit, and every thing recommended, at least every thing that is rationally recommended. Now, my opinion is from much careful observation that thousands of chicks are dying continually by too much artificial heat and too little outdoor sunshine and exercise.* My chickens, when ten days old, will chase each other about the yard at a temperature below 50, and it doesn't seem to hurt them a particle.

This covered yard I have mentioned is open on the south side up as high as your head. Of course, there is an inch-mesh fence along the ground, which goes down into the ground to keep out the rats. Above this there are two or three feet where a hawk could easily fly in if he felt so inclined. Well, I left this opening on purpose, hoping some hawk would fly in and couldn't get out, and then I would have him captured and help save some of the neighbors' chickens as well as my own.

Some of you may suggest that it is quite an expense to cover a yard, even if it is only forty feet square. To which I reply it is something of an expense to spend time and money for feed in raising chickens until they are half grown, and letting a hawk carry them off; and not only an expense, but think of the discouraged feeling that comes to one after having taken so much pains and care to nurse chickens through bad weather and then have them carried off in this way. It dampens my spirits and spoils my enthusiasm for the whole chicken business; but when I can succeed in getting things so arranged that every chicken that comes out of the incubator gets to be a big

live useful fowl, then I feel some animation and enthusiasm to go ahead. As yet I have no netting over my yard for young ducks. The hawks seem to have taken no notice of the ducks so far. I have seen in an advertisement of Indian Runner ducks that hawks never molest them. I wonder if this can be true. Speaking about Indian Runner ducks, I have just this morning brought in seventeen eggs from eighteen laying ducks. *You* may have had as good results as this from eighteen chickens, but I certainly never have before. Of course, I haven't had seventeen eggs every day; but they have been running from twelve to fifteen and sixteen for quite a little time. So far the Indian Runner ducks are better layers than any chickens I ever had any thing to do with. In regard to the eggs for table use, after having tested them repeatedly I greatly prefer a boiled duck egg to a boiled hen's egg. They certainly are richer in quality, and there is ever so much *more* in one of these big duck eggs. Let me repeat again, if you want lots of duck eggs, and good-sized ones, you must give them an abundance of feed. Our ducks now have soaked corn right before them, not only all night but all day long. After having taken a swim and a run down the canal, perhaps half a mile or more, they come back toward noon, or perhaps a little after noon, and go for their tub of corn (which is up close to the convergent poultry-yard) as if they really enjoyed the fun. After having had about a dozen dips into this tub of corn, and a drink of water to go with it, they go on a lively run for the canal again. Now, you may say it is quite an expense, especially with the price corn brings down here in Florida, to keep corn before the ducks, letting them take it at their own pleasure; but, as I said in regard to the celery business, what does the cost of a little corn amount to compared with the quantity of eggs I have mentioned, especially when the eggs also bring 30 cents a dozen, and that is what we are getting for them? Four duck eggs will bring ten cents, and I think ten cents will pay for all the corn that the whole flock of twenty-two (that is, including four drakes) consume in twenty-four hours. Of course, I am fortunate in having this canal that they can run to so constantly.

By the way, when I let them out in the morning, after their eggs are laid, I notice that they make a hurried run for the puddles that are left during the night on account of the rising and falling of the tide. Fortunately, the tide, when it is up high, comes clear up on to the canal adjoining my

* I am fully persuaded there are thousands of people just like this chick. They are dying, and don't know it, for lack of outdoor air and sunshine, and *something to do*. Let them wake up, get out and search all outdoors for "God's gifts," then "get busy" distributing these gifts to poor hardworking and poorly paid humanity, and they will promptly *get well* like the droopy chick.

premises. Then when it goes down again there are numerous puddles left in the hollow cavities of the coral rocks. These puddles contain little fish and other salt-water animal life. Just the other morning a duck ran out on the bank with something too large for her to handle. After having tried in vain to break it in two in order to swallow it I discovered that she had quite a good-sized flat fish, something like what they call in the North a sunfish. From this I infer that they get a good many little fishes by going up and down the stream every morning. Now, wherever it is possible to have access to a running stream, especially where the ducks will not annoy or interfere with the neighbors in any way, it certainly is a very desirable place to grow Indian Runner ducks. Where you have such a stream on your own farm or your own premises you are doubly fortunate. I think we may safely include the Indian Runner ducks with another of God's most precious gifts to his children. It certainly furnishes a very healthful form of animal food, and, so far as I can see, at a very reasonable price indeed. I have never heard any complaint from my ducks' eggs as articles of food. It seems to me that the quality is very much better for having the abundance of corn that they do every day. They are really "corn-fed" duck eggs. Our grocers, however, mix the duck eggs right in with the hens' eggs, saying that they have no complaint, and they don't discover any difference. Some of their customers, to my knowledge, pick out the duck eggs on account of their greater size. You certainly get more eggs for your money when duck eggs can be purchased at the same price than where you buy hens' eggs.

I want to say something more about lettuce. Young ducks, if they have access to plenty of head lettuce, will take it very largely in preference to grain, and it is a great saving. Ours are making a most astonishing growth, and a great part of their feed is lettuce from the fields around among our neighbors. Not a duckling has been lost so far, and, so far as my experience goes, I should say that they are easier to raise than chickens.

Just a word about the hawk. When I saw in the poultry journals that a couple of guineas in the poultry would be a great preventive against depredation by hawks, I sent clear up to Pennsylvania for a couple of Pearl guineas. They are just here, and I greatly enjoy watching the queer antics of these strange birds. The guineas are the greatest flyers of any thing I have seen in the line of domestic fowls. They

will rise almost straight up as high as the tree-tops, and do it apparently with the greatest ease. The male bird, the very first morning, gave presuming roosters and hens all to understand in a very few moments that he was "lord of the domain;" but when it was once settled by unanimous consent, he was pleasant and friendly.

"FENCING OFF" THE HAWKS.

It is now Feb. 5, and it seems my plan of leaving a part of the south side of the covered yard partly open did not work, for we found another dead chicken, with a wound under its wing about the size of a half-dollar. Wesley thinks that, after the hawk killed the fowl it was unable to carry it off because it was so big. This is the third one we have found lacerated under the wing in about the same way. Two were in the yard, and one when Wesley made him drop the chicken in the field. We have now enclosed these two yards *on all sides* as well as overhead, and we hope it will end the depredation from hawks. Covered yards—that is, if they are of any size—are rather expensive, it is true; but these yards are necessary only for chicks, say under four or six weeks of age; and, once made, they should last a good many years.

CHUFAS IN NEW YORK STATE, ETC.

Dear Friend Root:—I have noted quite a number of items in GLEANINGS relative to chufas, or earth almonds. I grew many of them in years past while in the poultry business, and know the yield from them is immense. I never measured or estimated the amount grown on my plots, but am positive the yield was very far above 100 bushels per acre. I have counted 600 fine large chufas on a single hill, besides many small ones. I grew the finest chufas on black muck soil. Even when planted close, they made big bulging hills filled with fine nuts. When ripe I would lift the hills with a fork, the roots and nuts staying together in a compact mass. If I wished to save any for seed and other uses I would pulverize the hills, and sift out the dirt and wash the nuts and dry them, which was an easy matter.

Most of the chufas I grew for my poultry, and always believed them marvelous egg-producers. For winter use I would store the hills in a dry place, and every day throw out a lot of the clumps for the hens to work over. It just did one's heart good to see the biddies scratch and dig the hills to pieces, and ravenously devour every nut. It did my heart even more good to see how they would shell out the eggs. Here was exercise and rich hearty food in abundance—the two things most essential for winter laying hens. The cost of harvesting the nuts in this manner for the hens was negligible, and they went very far in the saving of expensive food. It certainly is a wonder that these valuable nuts are not extensively grown by poultry-keepers. I should be pleased to hear from others on the subject.

Hyde Park, N. Y., Dec. 14.

A. T. COOK.

Please send me a copy of Mr. Terry's health book. Don't let me miss a single copy of GLEANINGS. Each copy is a welcome and appreciated volume of love and instruction.

Tabor, Iowa.

H. W. PARKISON.

Gleanings in Bee Culture

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Editorial

OUR COVER PICTURE.

THE view seen on our cover for this issue shows a part of the apiary of August de Malachowski, whose illustrated article appears on another page. In the foreground is shown the old model of the hive "Elita," as it appeared in 1909. The brick tenement hives are also shown, each of which contains four colonies.

"A BATTLE WITH BEES."

AN article under the above heading appears in the December issue of the *Wide World Magazine*. The story was told originally by Mr. Philip J. Baldensperger, an apiarist in the Holy Land, and reported by Frederick Lees. The article is intensely interesting, and any of our readers who have an opportunity to get a copy of this magazine will make no mistake in reading it. The article is illustrated by some beautiful engravings of colonies of bees loaded on camels, of Mr. Baldensperger's apiary, etc.

WHY A LIGHT MOTOR TRUCK FOR OUTYARDS.

WE recently purchased a small motor truck capable of carrying 1000 lbs. to be used in connection with our system of out-apiaries. The reasons we use a comparatively small machine are, low first cost, low upkeep, quick trips, and often. A large truck carrying two or three thousand pounds would be heavy and unwieldy. It would cut deep into meadows and fields where the apiaries are located. A light truck will carry as much aggregate weight in a day or a week, because it will go oftener. This is important, because the men should keep in close touch with the yards. Our general plan is to have a crew of two or three men take care of all the yards. If time is money it is important that these men be transported to their work as quickly as possible. During the height of the season a motor cycle in addition to the truck will carry a man from one yard to another to look after

swarms, cells, or other work of that nature, in a very short time.

We are just now distributing our 600 colonies around in fruit-orchards. The fruit-men are asking us to put bees on their ranches; and, of course, it is to our interest to put them there. Our plans are now to have seven or eight yards—possibly more; and the advantage of a small truck capable of carrying 25 colonies at a time is that it can move the bees at any time to pastures new. In one particular case we expect to move 100 colonies to a fruit-ranch of between sixty and seventy acres of fruit-trees ten miles distant. There is little or no clover in that locality. When the season of fruit-bloom is over it is our intention to move to where much alsike is grown. Four trips will move the whole yard of 100 colonies in less time than it takes to move with a two-horse team, because the distance will be great. Our experience is that a team, driver, and apiarist, will take about a whole day and sometimes into the night to go after a yard of forty colonies eight miles away, and bring them back home and put them in the cellar. That same bunch of forty colonies could easily be moved with a motor truck capable of carrying a thousand pounds on two trips in less than half the time; and, what is more, it is sting-proof.

We have studied this question from a good many different angles; and the more we study it, the more we believe a *light* truck will be much better than a heavy one that will tear up the soil in getting to and from the yard.

A CAUTION ABOUT SENDING HONEY OR PACKAGES OF BEES BY PARCEL POST.

THE ROCKY MOUNTAIN BEE Co., in this issue, asks for information on how to send honey by parcel post. The matter is of such importance that we thought best to give our reply here. While it is perfectly practicable to send eggs, comb honey, and other fragile articles for a short distance, say for rural delivery, we doubt whether it is advisable to try to send such articles any

distance by trolley or steam roads. Our experience so far has shown that comb honey sent by parcel post has broken down in almost every case, even when well packed. The entire package or packages on arrival are one dauby mess, and the probabilities are that every thing in the mail-sack in which these packages came must have been daubed more or less. Similarly, nearly every parcel-post package that has been sent us containing liquids of any large quantity has been broken or leaking; and it seems to us it will be only a very short time before Uncle Sam will stop the shipment of liquids, syrup, and honey, especially comb honey, unless more precaution is used.

We presume we have had as much experience in shipping small samples of comb honey by express as any people in the United States. Our plan has been to wrap up two or three sections in paper, then in excelsior in a market basket, being careful that there was plenty of cushion or packing material between the fragile articles themselves and the baskets. As a general rule, commodities can go in a basket by express when they can not be shipped any other way; but parcel-post rulings do not allow a handle to a basket; but a basket may be used if the handle is folded down or cut off.

One difficulty about the parcel-post business is the fact that all packages go inside of a mail-sack. A big heavy package up to the 11-lb. limit bumping against a light one is almost sure to be disastrous to the latter, especially if it contains any fragile article such as comb honey or eggs.

In view of our experience, both with express shipments and parcel post, we would strongly advise against shipping comb honey by parcel post. It is conceivable that a single section might be sent as a sample; but it should be wrapped very thoroughly in paper, then in excelsior, and last of all inclosed in a strong wooden box that is capable of resisting a severe bump from an eleven-pound package in the same sack. But even then the section of honey should be wrapped in heavy manila or paraffine paper to catch the leakage if any.

We would at the present time discourage sending even *extracted* honey by parcel post, especially for long distances. It would be very unwise to put up a single package of, we will say, eight pounds of extracted honey in a box weighing only three pounds. About the largest amount that can be shipped would be in a five-pound tin. This should be wrapped thoroughly in excelsior in such a way that the excelsior will not

become displaced and leave a vulnerable spot for a severe bump. After wrapping it in excelsior it should be crowded into a basket with the handles folded down or cut off, and the top covered with a thin board and thoroughly tied with strong cord. But we do not believe there is one person in a thousand who knows how or can wrap up comb honey so it will go through to its destination by parcel post. Even Dr. Miller can't do it. See his *Straw* in this issue.

It is to be hoped that Uncle Sam will see the importance of keeping out of the mail-sacks bulky and heavy packages that just come inside of the eleven-pound limit, for it is certain that heavy packages should be left outside of the sack. Even though a higher rate were charged to cover the extra handling, it would not then be possible to ship bees in pound packages by parcel post. While there is no difficulty in sending a queen and a dozen or more of her attendants by mail, it is an entirely different proposition to send one pound of bees, or approximately 4500 individuals, in a closed mail-sack. "It can't be done." If that same Uncle will permit bees and other live stock like chickens to travel in wire cages or crates *outside* of the mail-sacks the same as express our problem would be solved.

THE NEW EDITION OF OUR A B C AND X Y Z OF
BEE CULTURE.

THE last form of this work for 1913 is just coming from the press. We have been at work on it for the last year and a half, and now we have it ready for the public. The new edition contains 750 pages, or 150 more than the former one. On account of rewriting so many of the old articles, and the incorporation of many new ones, making the book so much larger than formerly, we are now obliged to charge \$2.00 instead of \$1.50; but we believe that the reader will acknowledge that it is cheap, even at that price. Approximately it contains nearly 600,000 words. Any volume of this size on a technical subject like beekeeping would ordinarily command a price of \$5.00; but now, as in the past, we much prefer to make a small profit per volume on a large sale rather than a large profit on a small sale.

The new edition has been most thoroughly revised by E. R. Root, ably assisted by Dr. C. C. Miller, of Marengo, Ill., the veteran comb-honey producer; by Arthur C. Miller, of Providence, R. I., banker and beekeeper; by John H. Lovell, of Waldoboro, Me., naturalist, botanist, and entomologist; and by Prof. Eugene G. Baldwin, the one

who wrote that interesting series of articles on Florida beekeeping a year ago.

Up to now the old editions have been printed on standing type; but the extensive additions and revisions made it necessary to discard the old type which was becoming worn, and adopt a new scheme for getting out this work. To do this we purchased a \$4000 linotype type-setting machine, which also handles all the composition in *GLEANINGS* and our subsidiary publications.

The fact that the new edition was to be entirely reset, from beginning to end, made it possible to make the revision much more thoroughly than had ever been undertaken before. In many cases, instead of patching new matter on to the old it seemed more practicable to rewrite the articles entire. A notable example of this will be found in the case of foul brood. The former edition contained six pages, while the new has sixteen. In the same way, other old subjects were rewritten, while with many other subjects it sufficed to make mere changes and additions here and there. There will also be found an entirely new set of articles that never appeared in any edition of the work.

A notable feature of this last edition is the bee botany, which was entirely overhauled, and in many cases entirely rewritten, by John H. Lovell and Prof. E. G. Baldwin, mentioned above. The subject of Pollen and the Pollination of Flowers was almost entirely rewritten by Mr. Lovell. We doubt if there is another man in the country who can handle these subjects more ably than he. Dr. C. C. Miller to a great extent rewrote "Honeycomb." He also made important suggestions (which were adopted) on the subject of comb-honey production; and well he might, for he is now regarded as one of our best if not the best authority on the production of honey in sections. Mr. Arthur C. Miller, who for so many years made a close study of the internal economy of the hive, made numerous suggestions, many of which were adopted and incorporated in the text. In other cases, where he might or might not have differed with the author and reviser, his notes were put in the form of footnotes at the bottom of the page, and signed "A. C. M." In a similar way will be found an occasional footnote signed C. C. M. (Dr. Miller). The unsigned footnotes are by the author.

At first thought, as one glances over the new volume and observes that two-thirds or three-fourths of the matter was written by E. R. Root, he will wonder where A. I. Root comes in, and whether it is a case of "Hamlet with Hamlet left out." We are happy to say this is not the case. Some of

the best things that A. I. Root ever wrote on bees (and he wrote a good many) still appear in this volume, and always will. It is not so much because his writings have been stricken out of this edition, but because the immense amount of new stuff made necessary by the growth of the industry has made A. I. R.'s material seem small in comparison. His familiar style will be recognized, for example, in *Abandoning Swarms*; *After-swarms*; *Anger of Bees*; *Artificial Heat*; *Artificial Pasturage*; *Bee-hunting*; *Bee-moth*; *Italian Bees*; *Queens*; *Robbing*; *Stings*. What he has written under these heads will always remain as classic in bee culture. No man had more enthusiasm in the study of bees than A. I. Root, and that enthusiasm is so conspicuous that his writings can usually be picked out of the other matter, even though they have been skillfully interwoven with matter written by others.

Another feature of the 1913 edition is special articles by special writers. That is to say, we have sought the best writers we could find on any particular subject. Note, for example, the articles written by Prof. A. H. Bryan, of the Bureau of Chemistry, Washington, D. C.; by Dr. E. F. Phillips; Dr. Snodgrass; Dr. James A. Nelson; Dr. D. B. Castell—all of the Bureau of Entomology, and all experts in their line.

For several years back we have been looking for a botanist who is also a beekeeper, a naturalist, and an entomologist—a man who has done an immense amount of field work—one who has secured his information first hand. We finally found such a person in John H. Lovell, whose work seems to be accepted by some of the best scientists in the country. He has prepared most of the bee botany in this edition; and from a scientific standpoint we believe it will be up to standard.

Taking every thing into consideration, we feel proud of our new A B C and X Y Z of Bee Culture. It is new from cover to cover. It is the work of experts in their respective lines. It is the largest and most comprehensive bee-book in any language in the world; and yet it is sold at the popular price of only \$2.00. It will be clubbed with *GLEANINGS IN BEE CULTURE* at \$2.50. Old subscribers desiring to secure the new edition of the A B C and X Y Z of Bee Culture can, by the payment of \$2.50, advance their subscription one year and yet secure a copy of this magnificent work. It is so much of an improvement, so much of an enlargement over any of the previous editions, that one who owns an old copy can well afford to secure the new volume.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

THE man who winters bees in a cellar will cast a longing look toward outdoor wintering as soon as he begins to establish out-apiaries.

As an experiment I sent by parcel post to Chicago 10 sections of honey, none of them perfectly finished, in a safety shipping case. Postage was 46 cts.; expressage would have been 30 cts. Only four sections were unbroken, and the honey was reported "on the run." [See editorial.—Ed.]

OUT-APIARIES afford an extra chance for improvement of stock. The best colonies can be massed in the home apiary, or one of the out-apiaries, and queens can be reared there with a better chance to meet the best drones. Then when the young queens are laying they can be distributed to the other apiaries.

P. C. CHADWICK, p. 174, complains that the cost of parcel post for honey is prohibitive beyond the first zone. Perhaps hardly so bad as that; for in zone 2, with nine times as large a territory, it's only 4 cents a pound; but it's not what we should have. From here to Chicago, 66 miles, 7 pounds costs 30 cents by parcel post; by express 25 cents. Eleven pounds costs 46 cents by parcel post; 30 cents by express. Uncle Sam can work for as little as the express company, and ought to.

A GOOD many, at least in Europe, take seriously the idea that larger bees can be produced by using foundation with larger cells. No less than 2500 Rietsche foundation-presses have been sent out with 736 cells to the square decimeter instead of the usual 854. That is, the cells were made with about one-sixth greater area than usual. [Does a large cell make the bees any larger? We doubt it. If, however, the cells are smaller than the normal size, the bees will be smaller, just as a Chinese woman's foot is made smaller by being put in a small shoe. As Cheshire has pointed out, there would be no advantage in having a larger bee, as such an insect would be out of harmony with the flowers for which they seem to be specially adapted by the great Creator.—Ed.]

REPRESENTATIVE LEWIS, one of the most interested members of the congressional committee on parcel post, favors this rate: Three cents a pound for the first pound, and half a cent for each additional pound up to 100 pounds for the first hundred miles, then half a cent additional per pound

for each additional hundred miles. By the Lewis rate a package of 12 sections, weighing, say, 14 lbs., would cost 10 cts. within 100 miles, and 17 cts. within 200 miles. Exactly this may not come; but something like it is likely to come before beekeepers are ready for it; for I don't know of any proper package ready for posting honey—do you? [There is a great future for parcel post; but before honey or bees can be shipped in that way some provision will have to be made whereby they can be sent like ordinary express matter in separate packages by *themselves* instead of in a closed sack. Bees in pound lots would smother in a sack. In a jumble of packages in a sack, large and small, comb honey would stand a poor show.—Ed.]

It is well known that cold favors granulation of honey, but it is not so well known that frequent change of temperature may be a still stronger factor. In *Ill. Monatsblætter* is given an instance, p. 21. Buckwheat honey in cans was set out where the sun shone upon it by day and it cooled off at night. In three or four days it began to candy, while in the steady temperature of a room honey out of the same lot remained liquid for weeks. [You say it is "not so well known that frequent changes of temperature may be a still stronger factor" in causing honey to granulate than cold. Those who have read late editions of our A B C and X Y Z of Bee Culture—yes, for five years back—must have seen where we have said that "the primal cause of granulation is the alternation of warm and cold weather." See subject of "Candied Honey." Then toward the latter end of the subject see this: "Continued zero weather is not so favorable as weather somewhere near the freezing-point, now moderating up to the thawing-point, then freezing and then thawing. When the weather remains continuously cold, set the honey out in pails or boxes in a room where the temperature goes a little below freezing, leaving it for a day or two, then move it into a warm room." At various times in these columns we have stated that changes of temperature will cause granulation much sooner than mere steady cold. As a rule you can leave liquid honey in a temperature 10 degrees below zero for weeks, and it will remain as clear as crystal. But a freezing and a warm temperature in alternation, day after day, for about a week, will begin to show results in that same honey. We therefore entirely agree with *Monatsblætter*.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

The so-called "pickled brood" has at last a definite descriptive name—"sac brood." It has also been discovered that it is to some extent infectious, as I have feared it might be. The United States Department of Agriculture has just sent out Circular 169 of Bureau of Entomology, fully describing the disease. This is the disease I spoke of on page 21, Jan. 1.

* * *

Dr. Miller quotes from *Deutsche Bienenzucht*, page 4, Jan. 1, regarding the necessity of a brood-chamber so bees can cluster in a sphere. A spherical cluster of bees in winter is not necessary where the brood-chamber is well packed. I often winter bees on four combs, and small nuclei on three combs, with success. It is always well to reduce the size of the brood-chamber to the size of the colony.

* * *

The editorial in regard to the color and temper of Italian bees is golden. I was much interested in a remark made to me by Mr. Frank Alexander, of Delanson, N. Y., last spring. He said he didn't like cross bees. I have had some experiences the past year in inspection work that I don't care to have repeated. I have found some that I wouldn't keep if you would give me a whole yard for nothing, set in the richest pastures flowing with honey.

* * *

On page 8, Jan. 1, Mr. Doolittle discusses the profligence of queens vs. longevity of bees; and he appears to have the argument on his side. It was a favorite theory with Napoleon that Providence favors the largest armies, and we beekeepers have been working on that principle very largely. The condition of a colony will often influence the amount of work done. A new swarm will sometimes accomplish twice what it did before swarming. I could not help wondering, after reading Mr. Doolittle's statements, whether there is any thing to hinder our having both a prolific queen and long-lived workers combined in the same colony. If we add to these gentleness and honey-gathering instincts, we shall have almost ideal bees.

* * *

From a Straw on page 40 it would seem that Dr. Miller and Mr. Morley Pettit do not think alike on the subject of European foul brood. Well, never mind. I have no doubt they would if they lived in the same locality and kept the same race of bees. A

great deal has been laid to locality in bee-keeping, and I have come to the conclusion that locality plays quite as much a part in European foul brood as in any thing else. In some sections it spreads with great rapidity, but slowly in others. For several years it has existed within two miles of one of our yards, but as yet I have not found a trace of it in our yard. It appears far less contagious in some sections than others. I remember one yard I inspected where it had been for two or more seasons without spreading beyond these two or three colonies. In low damp or hot localities it seems much worse than on high land or in a colder and dryer climate. I have noticed a decided difference in different yards in the same locality. Some strains of bees appear to be almost immune, while others succumb to it very quickly. I believe at the present time it is of much more importance to breed a race of bees that will contend successfully with this disease than to breed for the largest number of yellow rings on their abdomens.

* * *

Of immense importance is the editorial, page 38, Jan. 15, on the value of windbreaks for winter protection for outdoor-wintered bees. I have called the attention of the readers of *GLEANINGS* to this subject several times, and should have said more, but did not want to be considered a crank on the subject; but when I see every colony dead in that part of a yard most exposed to the prevailing winds I know that this exposure had much to do with the wintering of bees. For many years in locating a yard of bees on a new site I have considered protection from the wind quite as important as a good range or pasturage for the bees. We winter almost entirely out of doors; but like other good things, this matter of protection may be overdone. Mr. Halter wisely calls attention to this on page 56, Jan. 15. I have known a yard almost completely ruined by too much protection. A friend of mine built a high tight fence on the northwest and south sides of a small yard while his house was on the east side; and when the bright sunny March days came the bees flew, most of them never to return to their hives. The protection should be such that, as soon as the temperature of the yard becomes much warmer than the outside air, the air of the yard will rise, and the cool air from outside will quickly take its place, thus keeping the temperature of the yard near that outside.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

The women's number of GLEANINGS was a nice one, and I should like to make some comments on their ideas; but I have been a married man 17 years, so I pass.

* * *

Mr. J. W. George, at the State convention, asked why the cotton of Imperial Valley does not yield honey. It occurred to me afterward that it must be due to the nectar being very thin and the climate very hot and dry, causing a condition much the same as in the orange districts when extremely hot weather causes the rapid evaporation of the thin nectar from the orange bloom.

* * *

J. E. Crane, p. 57, Jan. 15, says: "The ignorance of the great mass of beekeepers is past comprehension. So far as I can learn, not more than one in six, in some sections, ever read a bee journal of any kind." This reminds me of a friend who invited me to dinner with him while at the recent State convention. On our way to the cafeteria he frankly (I like these frank open-hearted folks) opened his heart to tell me he had criticised me at a certain meeting for making a statement much like the above, saying he thought I was a little severe in the matter. Now Mr. Crane reports the same from his travels, and even a little worse. Bro. Crane, if any one has his doubts about the matter, let him take a similar trip and be convinced.

* * *

Western migratory beekeepers should study the question of shipping bees without combs. The problem of having their bees quarantined, as some of our western beekeepers have had theirs, might be overcome by having two sets of hives and combs, and shipping the bees from one locality to another in full-swarm packages without combs. At a reasonable express rate it might be cheaper and fully as profitable to have a full swarm to begin on an alfalfa flow as to have a hive containing mostly brood to begin the work; for if I have been correctly informed it is a difficult matter to get the old bees through when transporting them with the hives and combs. The greatest difficulty would be when shipping back for the orange-flow, which would have to be done in the fall immediately after the alfalfa season was over, and to get enough natural stimulant to start a force of young bees for early spring breeding. The stores for winter could be reserved at the end of the orange-flow. I believe it would be worth a thorough trial at any rate.

I have read with interest the discussion as to whether we should encourage more to keep bees or render more help to those already in the business. My idea on the question would be to offer first aid to those in the business, and not encourage those not in to go in, for there is going to be a continuous line of young enthusiasts enter from year to year, and they are the ones who need encouragement. Enthusiasm is half the battle, and is necessary to success in this line of business. One poor season will cure a bad case of bee fever where there is no enthusiasm to complicate the case; but where there is this complication, you may as well count the case incurable, and give every aid possible to the patient. I believe the teaching of apiculture in agricultural or even in high schools would be a most excellent line of knowledge for the general information of a public that has little or no knowledge on the subject compared to other lines of knowledge. If we could overcome such expressions as "rob the bees," "strained honey," and "bee gums," it would give a little higher conception of the business. I feel, however, that we are outgrowing those expressions to some extent.

* * *

A correspondent recently wrote me, saying the brood-chambers of his hives were honey-bound, and asked what I would do to relieve the situation. Circumstances enter very largely into the case any way you may figure it. If, in my judgment, they had sufficient bees to cover an extra comb I would slip one in the center of their brood-nest, expecting the queen to lay it full of eggs at once if the breeding season were at hand. Then I would watch developments. If the eggs were laid as expected, and honey coming in but very slowly, I should expect that to relieve the situation; and if, after the larvæ in the new comb had reached the stage where they were demanding the most stores, there should come two or three days of bad weather I would clap my hands and say, "Good! eat it up," for that would give them additional relief. But if honey were coming in freely, and there were only a limited time until the main flow was at hand, I would extract some of the combs to relieve the situation and give the bees a chance to start brood-rearing as rapidly as possible. If there were very much brood started, and bad weather expected, I would be very careful to leave them plenty of stores to carry them safely.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

WORKING BEES BY MOTOR-BOAT.

Not all beekeepers are so fortunately situated that they are enabled to carry out certain advanced ideas on a large scale. One of the chief ones of these is the management of big strings of out-yards, by means of the automobile. This is prevented by two main reasons, as a rule—the lack of suitable locations on one hand and the want of better roads on the other, or both. Fortunate is the one who can locate any number of apiaries in easy access from good automobile roads. That is one of the greatest essentials in real up-to-date extensive out-apiary management to-day. Of course this has no reference to the smaller number of apiaries owned by many beekeepers who are successful with that number.

Grant Anderson, of San Benito, Texas, well known as a queen-breeder, has made use of two automobiles for a number of years. He uses a light high-wheeled buggy, motor-driven, as a roadster in which to run to the various apiaries and other places when no hauling is to be done. For hauling trips he uses one of the light high-wheeled delivery wagons. These have given him excellent service and satisfaction, especially for pulling through muddy and sandy roads. In this respect the high-wheeled machines seem to have an advantage.

Recently we have been informed that Mr. Anderson has now all, or nearly all, his apiaries located on the banks of a river, and runs from one to another in a motor-boat. This would indicate still another step toward "hastening" beekeeping work in the management of large and numerous out-apiaries. It is to be hoped that the readers of GLEANINGS may be favored with an article and photos, showing this man's doings per motor vehicles and motor boats, for we have written Mr. Anderson to give us information.

* * *

A COLD SNAP.

While we have had quite a cold winter in Texas this year, there was not much severely cold weather. The cold weather was much more evenly distributed than during most of our average winters, and only occasionally did it get so cold that standing water was frozen over, and then only to a thickness of less than an inch.

During the last two months there was much warm weather during the middle part

of the days; but as a rule the nights were quite cold. The latter did not affect our early bloomers, however; and, in fact, there were all evidences that spring was here in the fore part of March. This has reference to the central part of the Lone Star State, the northern part having had still colder temperatures. Against this, however, southwest Texas was enjoying real spring weather; and reports from the more southern portions of this territory were to the effect that bees were storing honey rapidly enough to keep them too busy to swarm. It will be remembered that a honey-flow at swarming time stops all, or practically all, swarming in our part of the South; hence these reports show that quite a honey yield must be on to prevent the early swarming that may safely be expected at this time, with a moderate yield of nectar and pollen.

However, after all this beautiful weather and brightest prospects for a spring crop, the temperature dropped suddenly to 28 degrees on March 15; and the result was disastrous. Especially did it affect the fruit bloom, which was in full blow. As a consequence, the fruit crop will necessarily be short again this year. While the bees were materially affected by the destruction of this source just at a time of heavy brood-rearing, yet the beekeeper may safely figure on a somewhat better market for his products than when fruit is very plentiful. Although some beekeepers do not seem to think that this has any effect on the honey market, our own experience has shown time and again that there is a sudden slackening in the demand for honey as soon as much fruit reaches the markets.

We do not know how much the bees were affected. There was considerable young brood; and, owing to the warm days previous to the cold snap, the bees were scattered out of cluster so that, as a consequence, brood was not protected properly against the suddenness of the cold wave. In addition to this there followed several days of cold weather, preventing the bees taking proper care of all the brood. Therefore we found some colonies carrying out some dead brood on the following warm days. All in all, however, the damage does not seem to be great, especially to those beekeepers who are paying close attention to the great amount of stores now needed by the heavy brood-rearing colonies.

Conversations with Doolittle

At Borodino, New York.

WEALTH-PRODUCERS.

"Mr. Doolittle, I came over to have a little chat with you about the middleman as a wealth-producer. We are hearing much at the present time about the high cost of living. Does not every one of the dealers add to the cost of living without producing any wealth? This question was brought up to my mind when I was thinking of buying my bee supplies for the coming honey harvest. I find that, as a rule, I can get these goods no cheaper of the dealer than of the manufacturer; but the dealer must have quite a large slice out of the pockets of some one in order that he can be allowed to live in idleness. Why I say idleness is because a prominent political economist told me the other day that a trader or dealer adds nothing to the real wealth of society."

"Suppose we ask the question, What is production? and who are the producers of wealth? Take, for instance, the section material we need for use when we are engaged in the production of section honey. The man who takes a plank of wood and cuts section material from it is not the only producer who has brought human energy to bear upon it. The man who cut the tree up in the north woods of Michigan or Canada helped to produce that section. The man who drew the log to the mill, and the sawyer at the mill who sawed the log into plank, and the transportation company who transported it to the manufacturer of sections; the party who took the finished sections and put them down where they were to be used, and the man who received them and held them in his storehouse until the beekeeper was ready to exchange the fruits of his labors for them, all had a hand in the *production* of those sections.

"Let us go a little further: Every one who put forth any energy in getting the section to the place of consumption was a producer of sections so far as that section and the individual consumer were concerned; for to leave any of them out would deprive the consumer of his sections at the proper time and place. You live in central New York, and the section was made at Medina, Ohio, we will say. That section would be of no use to you until it found its way to central New York. And it seems almost ridiculous for me to say to a man of your intelligence that this section could come through the regular channels of trade cheaper for you than in any other way. It is true that you might stop work and walk out to Medina and bring the section back

in your pocket; but I will not insult you by saying that such a method would prove more expensive than to have it carried by a 'soulless railroad corporation' at the direction of the so-called 'useless middleman.' No: the dealer is not an idler by any means.

"Let us look at the finished product of our section honey for a moment. Where did such production begin, and where did it end? Are the bees the producers, or is the man who manipulates the bees the chief and only factor in the production of honey in sections? When is this production completed? and when does the act of production cease and that of consumption begin? Is it not plain that production ceases when the honey is in the hands of the consumer, and not before? If this is so, then every man or woman who had any part in getting the honey in the hands of the consumer is a real producer.

"Then there is a point as regards the dealer in honey, which is almost always overlooked. The dealer, as a rule, helps create a desire for our finished product, and, therefore, has much to do with the production of section honey. Whatever satisfies human desire can properly be called wealth; and if there were none desiring our honey it would, to say the least, be a useless production which we should be in. There must be a desire for our finished section honey before it can be called wealth; therefore the dealer or 'drummer' who creates a desire for our product must of necessity be called a producer.

"It is apparent from this that the dealer is valuable in more ways than one. He not only helps to sell our product by creating a want for it, but he brings goods to the point of consumption at less cost than they could be brought by the consumer, and at a saving of time. He keeps on hand ready for the consumer such goods as he may want, and at the time he wants them. This relieves the consumer of all anxiety and responsibility, and he has the use of the money up to the very time when he is ready for the article he needs. The nearer the article is to him when he is ready for it, the longer he can wait before he gets it. The dealer has to assume all the risk; and any man who knows any thing about the honey business knows that this is no small item. There is a possibility that we may have too many dealers—that some of these dealers are over-reaching and unwise. But it is sometimes well to ask ourselves these questions, else we become uncharitable."

General Correspondence

SUGAR SYRUP VS. HONEY

Mr. Byer Makes his Position Clear, and at the Same Time Shows that he is in Harmony with the Rest of the Beekeeping World

BY J. L. BYER

GLEANINGS for March 1 is just at hand; and as I read the editorial comment regarding that note of mine concerning the value of *syrup* as compared to good honey as to *lasting* qualities, I rubbed my eyes and hastily turned to "Notes from Canada" to see what foolish things I had been writing to put me "practically in opposition to all the rest of the fraternity." Now, while I would rather enjoy being in such a unique position as that, if sure that I was *right* and all the other fellows wrong, in this case I have not the slightest idea that such is the case, as I personally know that a large number of extensive beekeepers who have to feed lots of sugar every fall are right in line with me on this question. In the first place, I want to say that, *all* things considered, I do not think there is any thing quite so good for bees—certainly nothing better—than first-class honey sealed in the combs. Secondly, I believe that for our cold climate there is nothing in *general practice* that we can depend upon for safe wintering so good as thick syrup made from the best quality of sugar; and I am and have been right along an advocate of heavy feeding for winter if we wish to be sure of wintering successfully in our cold climate. Why this apparent contradiction? Simply because, under modern methods of extracted-honey production, we can not have any great quantity of first-class honey in the brood-nests after the supers are off. Indeed, in most cases there will be little honey of any kind; and what there is will be of late gathering, which is usually inferior to clover or basswood honey for wintering purposes. The saving of combs of clover honey for winter is not practical, and is not economical when colonies are kept by the hundred; as, for the winter months alone, good well-ripened syrup is equal to or better than the best honey. For spring I prefer the honey by all means, especially if the weather is too bad to allow free gathering of pollen.

Now, while I am right with the editor as regards the advisability of feeding sugar syrup for winter stores, the point of difference is the comparative values of a pound of syrup in a feeder versus a pound of good honey already sealed in the combs. I say

that it takes a pound of sugar in a feeder to equal a pound of sealed honey, while he contends that a pound of *syrup* has this value. The word "*syrup*" is very indefinite unless density of the same is mentioned; and whatever he may have had in view, I am referring to a syrup made of two parts of sugar to one of water, that being the proportion I always use for fall feeding.

While I have no *figures* to back up my contention in this matter, a lot of actual experience, often with a lean pocketbook to make me very careful in the matter, has convinced me thoroughly that it takes a pound of sugar when made into syrup, and fed, to equal a pound of sealed honey; and I now always figure on that basis when preparing for winter. If any one wishes to try the experiment in a simple way he can try the following, as I did more than once when at different times I had bees given to me in the fall, the owners not wishing to feed up colonies practically destitute of stores. This was when I was getting bees wherever I could, and at a time when they were more easy to get than is now the case. Strong colonies of bees were shaken on empty combs, and brought home to be fed up for winter. In some cases, when I had combs of honey on hand, they would be given these; but generally I had to feed them sugar syrup for wintering. At that time I believed that two-to-one syrup was equal, pound for pound, with sealed honey; but I soon got my eyes opened on the question. I would feed these destitute bees the 30 lbs. of syrup made by the two-to-one plan; and every time I would have to look after those colonies in the early spring to prevent starvation, while the colonies with *30 pounds of sealed honey* would have enough to carry them through. After a few experiences of this kind I began to investigate; and while I believe that a pound of syrup *sealed in the comb* will equal at least a pound of honey, that is an altogether different proposition from saying that a pound of syrup in a feeder equals a pound of sealed honey, as we all know that 30 pounds of syrup will not weigh nearly that much three weeks after it has been given to a colony. This shrinkage is very heavy—just why, I can not say definitely; but I suspect that quite a bit is lost in wax secretion, as whenever bees are fed they seem to secrete wax scales, whether comb-building is necessary or not. So as a matter of fact a colony fed a given amount of syrup is not as heavy to start out with as is the colony with sealed honey in the hive equal in

weight to the one we endeavor to bring up to standard by feeding syrup. Any one testing this must be sure that they have the amount of *honey* to start with, as very often about 20 pounds of honey and 10 pounds of *pollen* pass for 30 pounds of honey.

As I said at the start, I personally know that many of our heaviest producers now agree with me on this question; and, indeed, it is not so many years ago that I contended that thick syrup in a feeder equaled sealed honey pound for pound. Mr. John Newton, of Thamesford, Ont., was arguing with Mr. Sibbald and myself at a convention on this matter, and we both disputed his claim vigorously when he claimed that a pound of sugar was necessary to equal a pound of sealed syrup; but much against my will I have been forced to agree with him; for in so far as the purse is concerned, I certainly wish that such were not the case. But even on the basis of a pound of sugar to equal a pound of sealed honey, we still get mighty good value for the change. Just now, if I had good honey to sell I could easily get 12 cts. a pound for it, and I can buy the best granulated sugar wholesale at $4\frac{1}{2}$ cents a pound.

In conclusion, then, I certainly advise and practice feeding syrup for our cold winters, both as a matter of security and economy; but I am perfectly satisfied that for "our locality" it takes a pound of sugar mixed with half a pound of water to equal a pound of good sealed honey.

Mount Joy, Ont., Canada.

[When Mr. Byer in his department on page 141, March 1, put out a challenge to the editor in this language, "Surely you do not believe that a pound of syrup will go as far as a pound of good honey?" and then further on in the same item says, "While I have to feed lots of sugar syrup some falls, certainly I do not place that proportionate value on the syrup as compared with honey," we naturally concluded he was making the comparison under *like conditions*. That is to say, we thought he was contending that a pound of sealed honey in the combs was much superior to a pound of sugar syrup sealed in the comb; but in the article above he now makes it very plain that what he meant was that a pound of syrup before it is fed would not equal a pound of honey sealed in the combs. This being his position we nearly agree with him. We do not know, however, that we are quite prepared to believe that it takes a full pound of sugar, when made into a two-to-one syrup in a feeder, to equal a pound of honey sealed in the combs. A good deal

would depend on what time of the year this syrup is fed. If it were very late in the fall, when it is cold, and were given in one large feederful, say 25 lbs., our opinion is that the loss would not be as great as he estimates. If, however, he fed this two-to-one syrup early in the fall, then we are quite prepared to believe that it would take fully a pound of sugar in the feeder to equal a pound of honey sealed in the combs. All in all, we doubt if there is any difference of opinion between us, now that we understand each other. In all events, we are glad to place in this connection a short item from Mr. R. F. Holtermann, who supports the position taken by Mr. Byer.—Ed.]

Regarding the value of honey and sugar syrup, I consider that, from experience with honey and syrup side by side, as a winter store the sugar syrup is the safer winter food for bees. If, however, we feed and want a colony to gain, say, 20 lbs. of stores, I estimate the quantity by the number of pounds of sugar in the syrup rather than the weight of the syrup. For instance, if I want a gain of 20 lbs. I take 20 lbs. of sugar, and make it into a syrup, and feed it to gain the desired weight. The percentage of waste is greater when a less amount is fed, and in my estimation (and I act on this in practice) I never think it worth while to feed less than 10 lbs. of syrup with the object of securing a gain in weight worth while. Rapid feeding is also desirable to keep colonies from starting brood-rearing, and to prevent unnecessary waste in storing and ripening the syrup.

Brantford, Ont. R. F. HOLTERMANN.

HONEYBEES AND POLLINATION

The Wind of Little Value in Pollinating Fruit-trees

BY GEORGE H. WEST

The conclusions of all eminent horticulturists agree on the necessity of the honey-bee in orchards for effective cross-pollination, large fruit crops, and perfect fruit. The result of exhaustive experiments and observations, covering over twenty years, shows that most of our tree fruits are self-sterile—that is, they either produce no fruit from the pollen of their own blossoms (or that from the bloom of the same variety), or but a small amount of fruit, and this largely under-sized or defective. Self-pollination would be such as the wind might give, while cross-pollination would be bloom fertilized by the pollen from other varieties of the same species, and by insect visitation.

Wauyah, of Massachusetts, demonstrated

that plum pollen is not transmitted through the air in sufficient quantities to ensure self-pollination. Profs. Lewis and Vincent (Oregon State Agricultural College, Bulletin No. 104), experimented with plums, and reached the same conclusions. Their experiments on the action of the wind in apple pollination with varieties known to grow abundant pollen at the height of their bloom, and with a strong wind blowing, showed no effective deposit of pollen twenty feet from the trees and nine feet from the ground, nor thirty feet away, and at a height of six feet.

The writer's belief, from observation of some forty years in Colorado, where we have much wind, is that the winds are a positive damage to effective apple pollination. We have often observed apple trees that had little or no fruit on the north and west sides (from whence our prevailing winds). The deduction was that the pollen and petals were blown away. But we noted, also, later, that *bees rarely visit blossoms when the pollen is gone*, hence no proper fertilization and little fruit. For verification we cite the experiments of Lewis and Vincent, where all the petals and stamens were removed from the 1500 blossoms on a seven-year apple tree, leaving it exposed to both the wind and insect visitation. This tree was 20 feet from another that bloomed profusely. *Out of the 1500 blossoms emasculated, only five set fruit.* During the whole period (days) that the pistils of these blossoms were receptive, only eight bees visited the tree. More than twice that number were seen in one half-hour on the tree twenty feet away.

Certainly the forest trees and bushes, and most of our field crops, seem to secure proper pollination by the winds; but all authorities now agree that our tree fruits secure it effectively only by insect visits. If the theory is true, that all bloom which, in the economy of nature, supply nectar, *require* insect visits for effective fertilization and reproduction, then the bees which gather honey so largely from alfalfa clover *are a necessary factor in growing alfalfa seed.*

Prof. M. B. Waite, United States Department of Agriculture, Bulletin No. 5, "The Pollination of Pear Flowers," made experiments to determine the value of insect visitors in pear pollination. Of 36 varieties of pears tested on 142 trees, only nine proved self-fertile above five per cent. The experiments showed a great increase, both in the yield and size of the fruit, from cross-fertilization. Waite says, "It has been proved that cold weather, during the flowering pe-

riod, renders some plants incapable of self-fecundation, although they still retain the ability to be cross-fecundated." Observations by growers in Indiana and Utah confirm the truth, also, that cross-pollinized apples have more vitality to resist freezing weather and insect and fungous injury. Waite says, "Apples are more inclined to be sterile to their own pollen than the pears. * * * In the majority of cases no fruit resulted from self-pollination."

The experiments of Prof. S. W. Fletcher, Virginia Agricultural Experiment Station; of Prof. A. J. Cook, Horticultural Commissioner of California; of Profs. Lewis and Vincent, and others, all reach the same conclusions. They give little value to pollination by wind, and all give due credit to the busy bee. Fletcher's experiments showed that Bartlett pears, on 3081 tests fertilized with their own pollen, *produced only six small pears, or one fruit to 513 blossoms*; while with pollen from other varieties it grew one fruit from seven to ten blossoms, and these pears were over fifty per cent larger in size. Also, the Kieffer pear, on 1268 blossoms fertilized with its own pollen, *grew but five fruits, or one to 263*; while on cross-pollination, with other varieties, it yielded one fruit from three to seven blossoms.

In the Lewis and Vincent tests, self-pollinated Spitzenberg apples proved inferior in size, and ill-shaped, compared with the cross apples, and were practically devoid of plump seeds. On the yellow Newtown apple tests the results were the same, except that the average weight of the seeds from the cross-fertilized apples *was forty-six times greater* than from the self-fertilized fruit. Imperfect pollination can not produce perfect fruit. It is often "lop-sided."

Oregon circular bulletin No. 20 says, "Careful experiments have shown that very little if any pollen of our tree fruits, other than nut-trees, is transported by the wind. Probably 99 per cent or more of the transfer of pollen is done by insects. Prime among these may be mentioned the honey-bee."

The Bureau of Entomology, Washington, says the annual value of honey produced in the United States is \$20,000,000; but that *the service the bees render in fertilizing the blossoms of fruit trees is worth many times twenty million dollars a year.*

The bloom period of tree fruits is very short. The winds waste the pollen; the rain washes it from the blossoms, and drouth injures it. The pollination period is often greatly shortened by rains or cloudy days, when the bees do little work. For their

greatest effective work, the *hives of bees should be in the orchards*, and perhaps near those varieties that are the heavy pollen-bearers. Some honeybees work at night in Colorado and Idaho. Growers there think one average hive of thrifty bees for each two acres of mature orchard necessary for effective pollination. The hairy covering of the body and legs of the honeybees, and their brushes and combs for gathering and carrying the pollen, make their visits more efficient than those of other insects.

From some flowers the bees take only nectar; from others, only pollen; and some bees at times gather nectar alone, and others pollen alone; for bees make their pollen-collecting trips during the morning hours (Casteel).

The harmony of nature and the divine law is shown in these facts, that the tree-fruits bloom early, each in its own time and order, so that each gets its own pollen, and at a season when the honeybees are usually most of the flying insects present. They are numerous, active, and are insatiable and untiring gatherers of both nectar and pollen from the fruit blossoms. Then the rapidity and great increase in numbers of the bees is another favoring factor.

Chas. A. Green (Rochester, N. Y.), the well-known horticulturist, suggests that a single honeybee may visit 100,000 blossoms in gathering an ounce of honey; while D. C. Polhemus, a Colorado apiarist, says that a bee visits about 125,000 blossoms in making a *pound* of honey. If either estimate be true, and there are some 100,000 bees to every thrifty hive, surely effective cross-pollination could be secured with a hive to each two acres.

The use of bees in greenhouses, for fertilizing the bloom of vegetables grown for early markets, has been long a recognized necessity. The demand for bees for cross-fertilizing orchards is insistent. It should be a universal practice.

Colorado Springs, Col.

HOW TO PUT IN BOTTOM STARTERS

BY EMMA WILSON

Dr. C. C. Miller.—Several times I have tried to put bottom starters into sections, but could never make a success of it. With full-size foundation I have no difficulty. My Daisy foundation-fastener is of the old style, with a high rounded top coming above the section. To facilitate the removal I cut a deep groove into which I can insert a finger behind the foundation, and with the end of the finger support this, while I take the section away.

However, with the bottom starters it is different. The block (against which the foundation rests) always gets very warm, and covered with a waxy film to which the bottom starter adheres, so that,

when I remove the section, the starter either sticks to the block or drops over backward, and, in the latter case, if I try to raise it up it comes loose from the section.

WM. MUTH-RASMUSSEN.

Independence, Cal., Jan. 20.

Dr. Miller has placed this in my hands for reply, saying that it is much more in my line than his.

Putting in bottom starters is so easy for me that it is almost done mechanically. Still, I can imagine conditions that would make it difficult. We use the same style of Daisy foundation-fastener that you do, and I can not see why you need to cut any groove or need any support from behind in putting in the large top starter.

Now as to that troublesome bottom starter. I wonder if the chief difficulty is not that you cut the starter too narrow. Even so good an authority as A B C and X Y Z of Bee Culture gives the depth $\frac{1}{4}$ or $\frac{3}{8}$ inch. We find $\frac{5}{8}$ inch the best depth. If the starter is too narrow it is much harder to fasten in, and the bees will be apt to gnaw it down. It seems to me a $\frac{1}{4}$ -inch starter would be very difficult to handle, and even an experienced workman would make very poor work with any thing so small. The bottom starter is always fastened in first.

If foundation must be put in during very warm weather, use the early morning hours for the work, and keep the foundation as cool as possible. Do not allow the wood of the section to become heated. If this happens, take a fresh section, and allow the heated one to cool. The quicker the work is done, the better; so, if possible, do not get nervous over it, as it will help a whole lot if you yourself can keep cool too.

I will now try to tell, as well as I can, just how it is done at Marengo. Take a section upside down with the right hand. Place it on the machine; then with the thumb of the left hand at the bottom of the section at the left end, and fingers of the same hand at the top, push the section and machine back so that the section will be under the plate, and at the same time pick up the bottom starter from the lap with the right hand. Put the starter in place against the block with the edge resting on the plate, keeping the tip of each fore finger pressing lightly on the top edge of each end of the starter. Then very quickly pull back so that the starter will slip off the hot plate, and hold in position not more than a second. If the work has been done quickly so that the wood of the section has not been heated, the foundation will cool in that time so as to hold firmly when the section is reversed to put in the top starter.

Marengo, Ill.

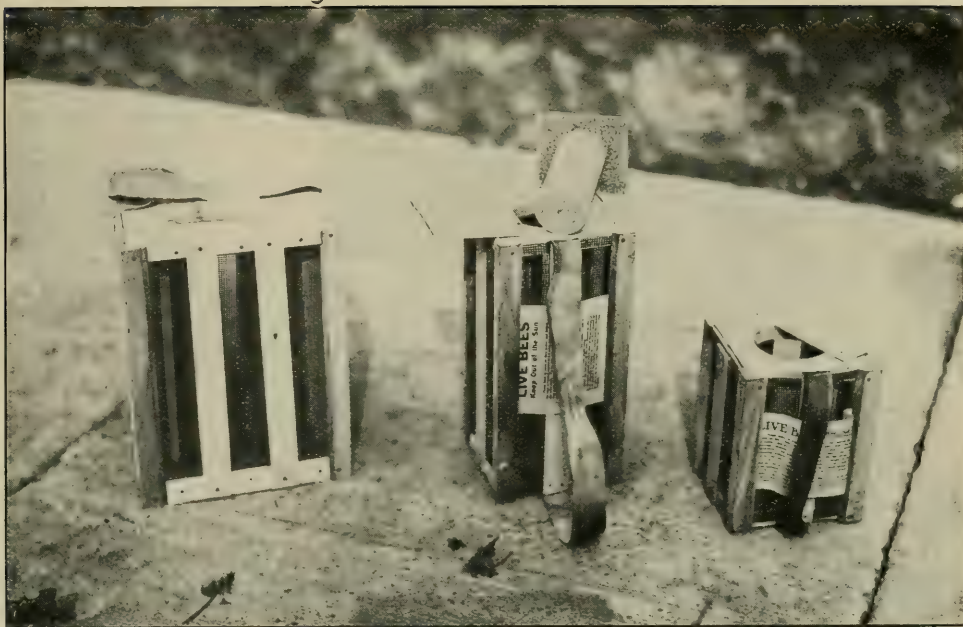


Fig. 1.—Old style of pound package for shipping bees without combs.

SHIPPING BEES IN POUND PACKAGES WITHOUT COMBS

New and Old style Cages; Construction of Cages, and How to Prepare Bees for Shipment

BY E. R. ROOT

There is no one subject, perhaps, that has been introduced during the last six or eight months that has called forth more correspondence than the one now before us; viz., how to ship bees without combs for the purpose of saving express charges, and eliminating the possibilities of transmitting disease.

For years we have sent bees in pound and half-pound packages; but it has been only within the past two years that we have attained any degree of success. Some fifteen or twenty years ago, when we shipped bees in this manner we lost fully fifty per cent during transit—so much so that we finally gave the business up in disgust. But two years ago it seemed to be more important than ever that we should devise some scheme by which we could send bees without combs, on account of the general prevalence of bee disease; for combs are the chief means for the transmission of infection from yard to yard and from one locality to another. Indeed, we may say that, were it not for the moving of hives of bees from one place to another, foul brood would be confined to a comparatively

narrow area. But it has been pretty definitely proven that bees shaken or brushed from combs may be placed in any clean hive or package without danger of carrying disease. In fact, the basic principle for the treatment of foul brood is the separation of the combs and honey from the bees having foul brood. The pound package calls for neither combs nor honey; and, what is more, a given portion of bees can be shipped without them at about one-fourth the expense for express charges that would be required were combs sent. But it may be argued here that the combs may contain brood, and that this brood will hatch into bees. On the other hand, we may say that all "unsealed" brood will be removed or starved. Unless bees have water given to them *en route* at frequent intervals they will not take care of their unsealed larvæ. But the shipment of brood in any form involves the danger of carrying disease; and the time may come when legislation will entirely bar out the traffic in bees with combs. In the mean time it behooves all shippers of bees on combs to take extra caution to see that their yards are clean, and, so far as possible, encourage the purchase of bees in combless packages, or what has been popularly termed "pound packages."

We said a little way back that, during the last year, we have been quite successful in shipping bees in pound packages, when

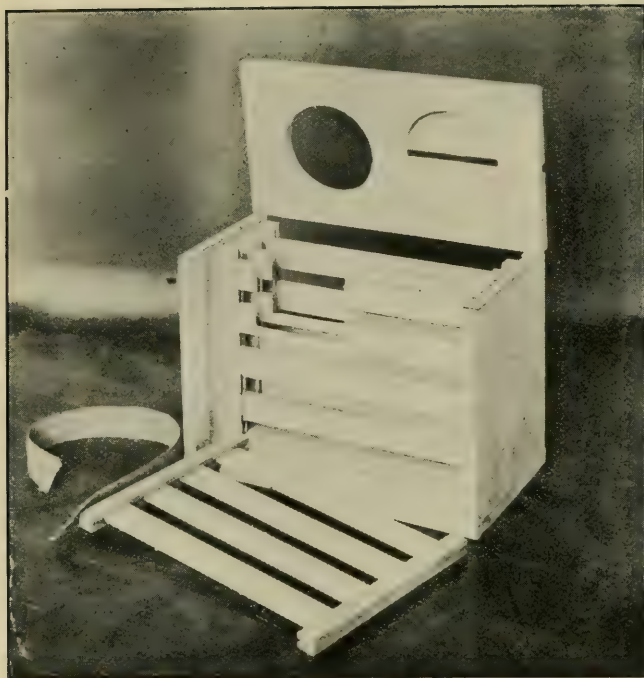


FIG. 2.—One-pound cage dissected, showing internal construction of new style.

our earlier experiments were any thing but satisfactory. The cause of our former failures we now know was due to two conditions—lack of water in hot weather and the absence of suitable supports in place of combs for the cluster.

Years ago shipment of bees in pound packages during hot weather was nearly always attended with loss, requiring at least fifty per cent of replacement. During the past summer we discovered that we could eliminate this loss almost entirely by giving the bees a bottle of water. In some cases

there was a failure because the bottle did not feed the water fast enough. The most suitable container for the water seems to be an ordinary self-sealing tin can. The top of the can (or what will be the bottom), after filling with water, is perforated by a hole a little larger than one made by a good-sized pin. This bottle, after the case is filled with bees, is secured to a wooden cap that closes the hole in the top of the cage. See Fig. 1. The middle cage shows a tin can with a perforation in the bottom. Across the top is soldered a sheet of tin. This acts as a support for the bottle after it is inverted and set down in the hole in the cage. A wooden cap covers the hole. The style of tin bottle shown in Fig. 1 is not used now—that is to

say, we now employ a regular self-sealing can instead, the bottom of which is secured to a wooden cap that closes up the hole in the cage.

The other requirement we found necessary was some means of support for the bees while in transit. Years ago we dumped the bees into a wire-cloth box, when they would shortly form into a cluster like a little swarm, thus hanging on to each other for the whole trip. While bees can hang in the form of a swarm for a short time, experience has shown that it is more natural for them to hang on to something, and why not? Just notice how a swarm will show an inclination for a large bushy limb with little limbs projecting in all directions. With that idea in view we instructed one of our men to make up some cages with a series of wooden slats passing centrally through the cage. In Fig. 1 these slats are shown only indistinctly; but in the more modern cages (see Figs. 2, 3, 4, 5, 6) the slatwork consists of a series of fences—slats about $\frac{3}{4}$ inch wide, and spaced about half an inch apart. A series of these fences are slipped down into grooves in the ends of the cages. See Fig. 2. Two of the central fences are cut out to make room for the water-bottle, as will be seen.

In this connection it is proper to remark that the cages shown in Figs. 2, 3, 4, 5, 6

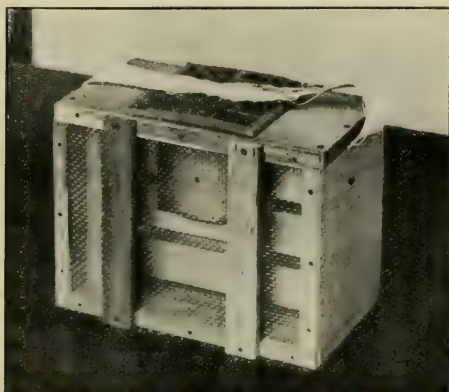


FIG. 3.—New style one-pound cage for shipping bees without combs.

are much better and stronger than the old style shown in Fig 1; and, moreover, when the water-bottle is mounted in place, the strap handle will always keep the cage right side up and the water-bottle right side down so that it will always feed water. In the old-style cage the bottle would be on its side, and when half empty would not feed water, as will be seen by the middle cages in Fig. 1. The new-style cages with solid top, bottom, and ends braced with the transverse fences and the cross-cleats over the wire cloth on the two sides, make a very strong cage—one that might stand the rough handling of parcel post, providing bees could be shipped that way. The water-bottle in the cage of the half-pound and the five-pound size is stationed in the center of the cage. See Figs. 3 and 6. In the one and two pound sizes it is placed at one side. See Figs. 2, 4, 5.

In Figs. 4, 5, 6 will be noticed little cake-tins placed on top of the cage at one or both ends. These are filled with ordinary queen-cage candy made by mixing powdered sugar and honey that has been thoroughly sterilized, and then kneaded into a stiff dough. These cake-tins are filled level full of the candy, inverted, and nailed over a longitudinal slit in the top. See Fig. 2. The larger-sized cages require, of course, more candy and larger containers, and all of them require water in hot weather.

HOW TO PUT BEES INTO THE CAGES.

There has been a raft of inquiries as to *how* we get the bees into these pound cages. This is a very simple matter. Just suppose we are going to put up a two-pound package of bees. We take a package of suitable size, put it on a pair of scales having an adjustable dial to take off the tare. Then we set the pointer back to zero. We now open a hive which the records show is capable of filling this order, and yet leave sufficient bees to take care of the brood. We next find the frame the queen is on, and

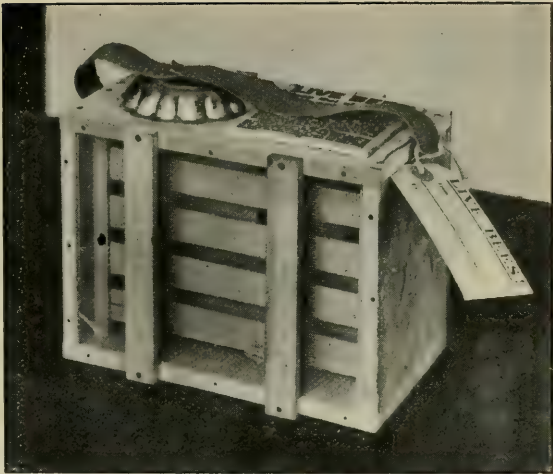


FIG. 4.—Two-pound size, new style, without combs.

set it down beside the hive. We now take a position as shown in Fig. 7, with a specially constructed funnel having a large oblong top and a small contracted opening at the bottom just large enough to insert in one of the round holes in the top of the cage. The frame is inserted in the funnel as shown, and given one quick shake, dislodging four-fifths of the bees. As the inside of the funnel is smooth, the bees slide right down easily into the cage. Another frame is shaken in like manner; and when the pointer on the scales registers two pounds, exclusive of the tare taken off, the

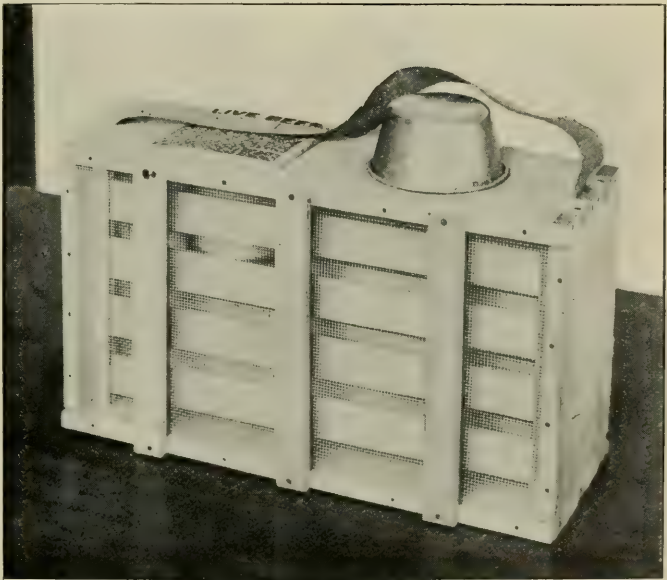


FIG. 5.—Three-pound size, new style, without combs.

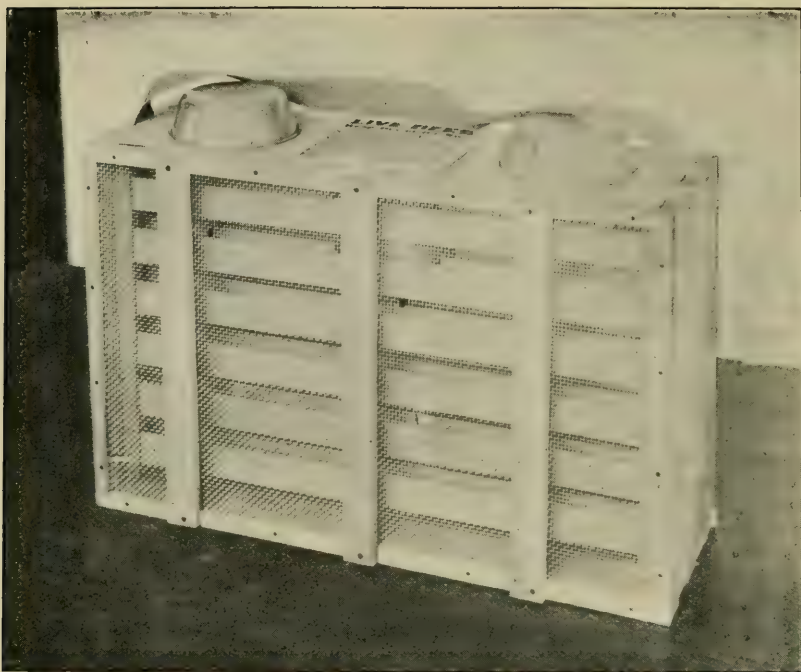


FIG. 6.—Five-pound size.

funnel is removed. If bees are gathering honey freely we add 25 per cent to their weight so as to give full measure. After the bees are all shaken into the cage, the last operation is to pick the queen off the comb that has been set aside, and gently drop her among her subjects in the cage. But it very often happens in the early part of the season that it is better to fill an order from four or five different hives. To take two, three, or even only one pound of bees from a colony in the spring is a severe drain on them. Sometimes we fill a package from three or four different hives. That, of course, means we will have in the cage as many different lots of bees.

How about the queen? In nine cases out of ten any queen from any hive may be dropped into such a heterogeneous mass of bees, and be accepted without any further trouble; but because of that one failure out of ten we now make it a rule to use a virgin-introducing cage with a plug of candy in it, and into this we put the queen. The introducing-cage is secured to the wooden cap that covers the filling hole. In four or five hours the bees will be ready to accept their queen—that is to say, they eat out the candy and release her.

So far we have been able to ship bees during the hottest weather in summer, providing we use water-bottles properly arranged

so that they will feed water during the entire trip. We have already published reports of how we have shipped bees successfully to Oregon, Florida, Maine, and many other points, with the loss of scarcely a bee.* But it is exceedingly important that the candy be made just right. A candy that is too soft will run down and daub the bees. A candy that is too hard the bees can not eat. It must be just right. We make up a batch of candy about a month before we expect to use it. We let it stand in a warm room; and if it begins to spread in the pan or on the molding-board, after standing two weeks in warm weather, more powdered sugar is kneaded in. If, after a week or ten days, it seems to be soft and moist so that it can be indented by a pressure of the finger, and yet will hold its position without "running" on the molding-board, it is then fit to use. A word about the sugar. Be sure to get powdered sugar without starch in it.

We anticipate that the pound packages of bees we illustrate, or those embodying these principles, will be a nice business for

* We shipped one three-pound package of bees to Guelph, Canada, last winter, when the temperature was nearly down to zero. About one-third were dead on arrival. The expressman probably felt sorry for them, and set them against a steam-radiator. We don't believe the cold killed the one-third that were dead.



FIG. 7.—Method of putting bees in the cages.

beekeepers all over the country. It will make an interchange of bees possible from one locality to another without danger of transmitting disease, and at the same time reduce the cost of express charges down to a mere trifle. It will also make it possible for the extensive beekeeper to ship a thousand colonies in a carload from the South to the North as against only 250 colonies on combs in hives. But do not let any one be foolish enough to try to ship a carload of bees in pound packages until the thing has been tried out more thoroughly in small express shipments. We expect to send fifteen or twenty colonies to Des Moines in three and five pound packages, as shown in Fig. 6. The express on these will be about one-fourth what it would be on full colonies. The bees will be shaken on frames of foundation toward night. The entrances will be closed with perforated zinc. Now right here is a danger. Where possible, bees in pound packages should be let loose on a frame of unsealed brood. Where one already has bees in the yard, he can secure his brood from other colonies; but in the case of a beginner who has absolutely no

bees, he will have to let them loose on foundation, and watch them carefully next day, as they may swarm out. Of course, bees that are let loose on foundation should be fed a thin syrup.

Another question here has been often asked—"How are you going to get the bees out of the cage on the frames?" Smoke the bees a trifle, and pry off the cleats on the side; remove the wire cloth, and lay the cage flatwise down on the frames. Put on an extra super, then the cover. In two hours the bees will come down on to the combs. If the bees have a frame of honey, or, better, one of unsealed brood, they will go down immediately. If only bare foundation, they will show a tendency to cling to their cage several hours, when they will gradually work downward.

Now one more caution. Do not try to ship bees by parcel post. It is forbidden by the regulations, and under present conditions it will not be possible to get the bees through alive in the ordinary parcel-post mail-bags. So do not try it under any conditions.

These special cages may be obtained of the dealers. But better not try to make up your own cages, as your first experiment may be a light fragile affair that will not stand ordinary usage in the express car.

We have so far omitted to say that, along with every package, is a live-bee tag with instructions to the express man to keep the bees out of the sun, away from steam-pipes, and from exposure to unnecessary cold.

BEEKEEPING IN SOUTH RUSSIA

BY AUGUST DE MALACHOWSKI

I am sending you some photos* of my hives in Russia, and a drawing of one of my "Elita" hives, as well as my Eureka feed-trough. I shall not dwell long on the description of my hives, because the drawing shows the same sufficiently. There only remains for me to say that the hives are constructed of spruce, one inch thick. These hives have been giving me complete satisfaction for some years; and even this year, which was very bad for honey-making, and during which the bees did not make cells in the Dadant-Blatt hives, my Elita were full of honey, and I obtained more than 55 lbs. of honey.

My frames are also another peculiarity. The interior size of the brood-frame is $8\frac{1}{2}$ inches wide by 17 high; and for the super,

* One of the photographs sent is used as our cover picture for this issue.—Ed.

$8\frac{1}{2} \times 8\frac{1}{2}$ inches. I arrange so as to put into the large frame two smaller ones that fit into the super. Once my frame is divided in two, I can at any moment remove the contents of the frames or transport to the super a part of the honey, put the brood-combs below, etc. I make these interior frames in the sectional style, of boards about $\frac{1}{4}$ inch thick.

I have many of these frames ready with wax foundation, and I use them even with my Elita hives, or with my brick hives when needed. This is extremely practical in apiculture, because, having these frames in the super filled with honey, after making a springtime visit and noting that the bees are short of honey, nothing is easier than to give them one of these surplus combs of honey.

The engravings show that I have some brick hives. There are four colonies in each house. Each colony has a wooden hive covered on two sides with moss or fine straw, and entirely covered by some boards in order that the mice may not enter. These hives are very practical, because the bees winter in them very well on account of the even temperature.

All my hives without exception, even the Dadant-Blatt, are furnished with my Eureka feed-troughs, which have given me entire satisfaction, and are so practical that one can feed the colonies at any time without opening the hives. I fill a bottle, equip-



The old type of hive equipped with box feeder.



Latest model of Malachowski's hive, "Elita," with "Eureka" feeder.

ped with a small aluminum tube, with syrup or diluted honey. If it is cold weather I heat it a little; and when I turn the bottle upside down in the trough I can then see in a few moments that the bees are quickly eating the honey by the bubbles of air which come up. This is very practical, especially in the spring time, in order to stimulate brood-rearing. I can feed an apiary with 100 hives in half an hour at the most.

I make my feeders in the house; and, moreover, if the hive is thick or has double walls I only lengthen the tube. As there are only two small openings to allow the syrup to pass through, the bees can not enter into the tube.

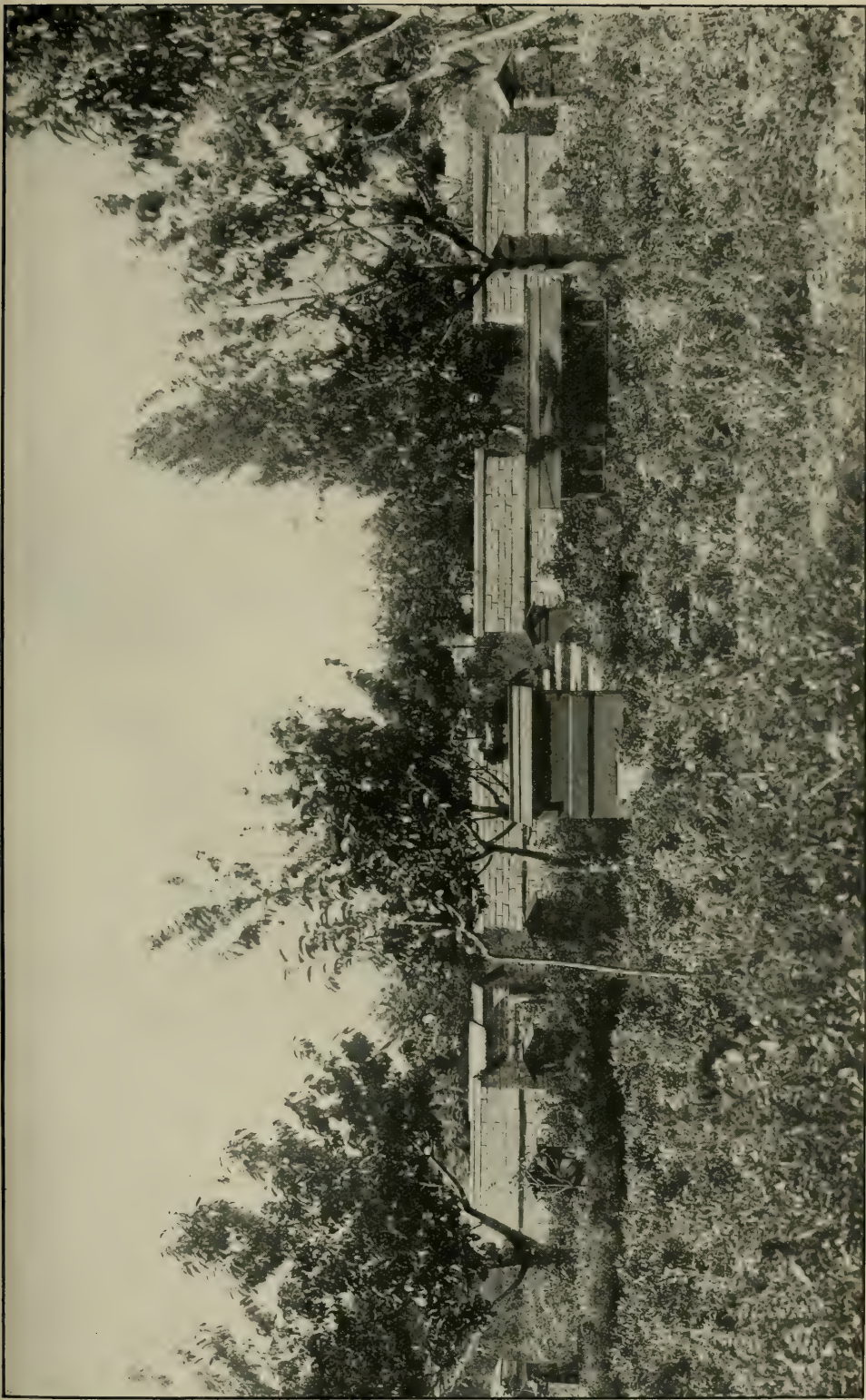
This is the feeder that I recommend, especially to my co-workers in apiculture in America; and by using the same you will find that you will be very well satisfied.

Odessa, Russia.

BEES AND THE PARCEL POST

BY R. W. COBB

In GLEANINGS for January 15 and February 15 the possibilities of shipping bees by parcel post in one-pound packages or cages is commented upon by the editor. It is a very interesting subject to me, as my occupation for the past ten years has been



Portion of apiary of A. de Malachowski, in South Russia. In every brick tenement hive there are four colonies.



One of the first models of Malachowski's hive, "Elita."

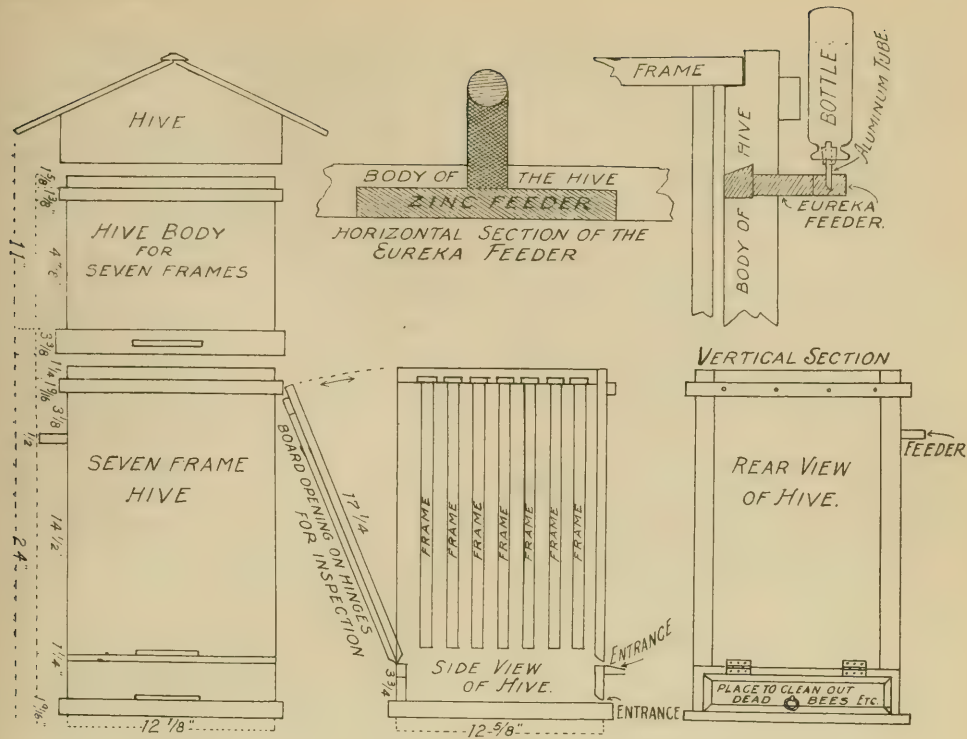
that of a railway postal clerk. I have given this much thought ever since The A. I. Root Co. shipped the two carloads of bees from Florida last spring. Excellent time for freight service was made; but had there been a method for shipping by parcel post the expense would have been cut tremendously, and the time on the road materially lessened. I have always been in favor of the parcel-post system, and am more so since its inception; but having seen so much of the practical side of shipping packages of all descriptions by mail, it must be admitted that we beekeepers, with our present equipment, are far from being prepared to reap any advantages in this line from parcel post.

Before any attempt is made to ship a nucleus or even a half-pound or a one-pound package of bees by mail, provision should be made for a receptacle to combine four qualities. First, strength; second, ventilation; third, protection to the bees; fourth, protection to those who handle it. This means we can not use an ordinary wire cage, such as the express companies are now accepting. Neither can we use a package such as Mr. J. A. Kreighbaum describes, p. 132, Feb. 15. While he has partly solved the ventilation problem by providing the air-space between the two

walls, he has neglected to protect both ends and both sides. I infer from his description that a board was placed over the top, and a piece of heavy felt on the bottom; but no protection is afforded either end or either side against the possibility of a hole being made through the two walls of wire cloth. There is his weak point. While ninety-nine cages like that will travel safely by mail, the one hundredth one will meet with an accident and cause untold trouble.

But few people realize the great number of times a piece of mail is handled from the time of mailing until reaching destination, and the strain necessarily imposed upon it. In the case of bees, each handling means an additional jar and a consequent ruffling of their tempers, and the liability of the postal employee being stung.

The postal laws and regulations require all mail to be dispatched from postoffices to trains and *vice versa* in mail-sacks which are closed tightly to guard against any loss of mail. Hence the instant a parcel is dropped into a mail-sack its identity is lost until the sack is reopened. During this time the package of bees will be in various positions in the same sack. For instance, at one time it may be right side up; again, it may be on its side, and still later it may



be upside down. With the express companies it would not be out of sight at any time, but in the same position *all* the time. The above-mentioned conditions will hold, no matter how many caution or fragile notices the packages may be endorsed with. I can now bring out my point by a single illustration, somewhat lengthy, but showing practically the exact number of times a package would be handled in transit.

We will assume that The A. I. Root Co. at Medina, Ohio, mailed a package of bees to go by parcel post to Mr. Doolittle, at Borodino, N. Y. The postmaster at Medina places the bees in a sack with other second, third, and fourth class matter, and dispatches it by wagon to a railroad depot at Medina. It is then taken from the wagon at the depot and placed on a truck, and wheeled across the station platform and put on the train, where the postal clerk opens it and makes proper separation of the mail. The bees are then placed in a sack which is labeled "New York," along with all other mail for that State.

At Cleveland the sack is taken off this train and placed on a truck with many others, and wheeled across the station platform to a wagon awaiting the arrival of this train. It is then placed in the wagon and transferred across the city to the depot of

the L. S. & M. S. railroad. Here the contents of the wagon are sorted, and each individual sack placed on a truck with other sacks for the same State, and then wheeled to the car of the train into which they are loaded. As the sacks are taken into the car by the men, they are placed in a pile until each individual sack can be sorted. That is, all the sacks labeled "N. Y. State" are placed in one pile, and those labeled "Massachusetts" in another pile, and so on. In the New York pile there may be anywhere from ten to forty sacks full of mail. The sack containing the bees may be on the top, in the middle, or perhaps at the bottom of the pile. The next procedure is, distributing these sacks—that is, dispatching each individual piece of mail to its proper destination. This time the sack containing the bees is carried from the pile in which it was placed when taken aboard the train, and contents dumped on a table, so as to be readily accessible to the postal clerk, who places the bees in a sack labeled "Syracuse & Rochester R. P. O." (railway postoffice). Before arrival at Syracuse the sack is taken out of the rack in which it was suspended, and placed in a pile of mail to be put off at that point. It is then loaded on to another truck and wheeled across the depot platform to the "Syracuse and Rochester"

train, where it is taken into the car and goes through the same process of being piled in with several other sacks which are to be distributed on this train. Here the bees are placed in a sack of mail for Borodino, and eventually put off at that place and carted to the postoffice, where the sack is opened, and bees delivered to Mr. Doo-little.

During this time the bees have been on their journey less than fifteen hours, and have been handled a great many times; yet only three persons knew the contents of the mail-sacks. Mr. Kreighbaum's receptacle practically requires that every person handling a sack of mail know its contents—a condition which is impossible.

I think from the foregoing that any one can understand why the receptacle should be firm, strong, and well built. The strain which has been imposed upon it has been enormous. Should it be unfortunate enough to have had an extra-heavy weight placed upon it, causing some portion to spring, or a hole have been made, allowing the bees their freedom, a great many stings would be received by those handling it. Should any of the government employees be stung, a ruling would soon emanate from the Postoffice Department at Washington, barring bees from the mails entirely. This would place us in the same predicament we were in about thirty years ago. It is not hard to imagine how serious an injury to apiculture this would be. I have reread the article in GLEANINGS of March, 1880, page 106, and must say that the conditions are just the same to-day regarding the essential qualities of a mailing-cage.

We must bear in mind that it is now allowable to ship such things as iron and steel castings, not exceeding ten pounds in weight, by parcel post. For my own part I would not care to meet an infuriated bunch of bees which had just made the acquaintance of an iron casting, killing and maiming a portion of them. Consider, then, the predicament of the postal employee who has never seen nor heard of a veil or smoker. I well remember the day when, still a small boy, I was returning home on the train with my father and mother after a day spent at The A. I. Root Co., in Medina. Father had purchased a pound package of bees which we were carrying home, and, boylike, attracted by the bees crawling on the screen, I undertook to feel of them, which resulted in my receiving a painful sting. My cries furnished entertainment for the occupants of the entire car.

As the postal laws and regulations now stand, I do not think a package of bees of

any size other than these in which we have sent queens is mailable. Section 496, paragraph 7, of the Postal Laws and Regulations, plainly states that "Queen-bees and their attendant bees" are admissible to the mails. A pound or a half-pound package would not enter into the spirit of this law. I might add that queen-bees and their attendant bees and the Australian ladybird are the only live "stock" admissible to the mails. I can hear some people saying, "Oh! we have received such and such a live thing by mail." That is true, and the explanation is easy. The postmaster at the office of mailing was ignorant of the Postal Laws and Regulations or it would have been withdrawn from the mail and returned to the sender.

By all means, before we jeopardize the privilege we now have of mailing queens, let us perfect a suitable receptacle for shipping bees, and then have it approved by the postal officials at Washington.

Lakewood, Ohio.

[The present regulations with regard to packages by parcel post are such that it would be impossible to ship bees in that manner, and get them through alive, even though the postal regulations did permit it. If they are ever to be sent by parcel post it would never do to put them in a mail-sack as we do the queen-bees and their attendants. They would smother to death. A large number of bees, say half a pound, a pound, two pounds, three pounds, or even five pounds, would need to have a large amount of air; and during hot weather they would smother to death in a very few minutes in an ordinary closed mail-sack. If the time ever comes when we can send pounds of bees by mail there will have to be some regulation that will permit packages of bees to be left outside of the mail-sacks. Whether Uncle Sam will ever make such discrimination in favor of bees is doubtful. If the time ever comes when it is permissible to send live poultry by parcel post, then we might be able to secure a ruling that would permit live bees in quantities of half a pound, pound, two pounds, or three pounds, to go in that manner.—Ed.]

Treatment of Laying Worker Colony

P. C. Chadwick, referring to page 75, Feb. 1, will there not be bloodshed in the laying-worker colony, now containing the frame of brood, on the return of the *flying bees* of the strong colony, on whose stand the former colony is now placed? I presume you also mean that the queen of the colony which is now placed on the stand of the laying-worker colony has to be caged for a time to prevent molestation from the bees of the latter.

JOHN ELIAS JAMES.

Pontardulais, Orange, South Africa.

IS ALFALFA POLLINATED BY BEES?

Some Interesting Points in the Discussion

The following article appeared originally in the *Dakota Farmer*, on page 61, by A. O. Stevens, of the North Dakota Agricultural College. One of our subscribers, Mr. Jess Dalton, questions the correctness of Mr. Stevens' statements, and desires to make a reply. In order that the reader may better understand it, we are publishing this article entire.—ED.

BEES AND THE ALFALFA SEED CROP.

In the December 15th issue of *The Dakota Farmer* appeared an article referring to the value of the honeybee as a pollinator of the alfalfa flowers. The article in question is quoted for the most part from *The Country Gentleman*, and begins thus:

"Very few data are at hand relative to the value of insects in the production of a seed crop." This is quite true; but it is also true that most of the discussions on the subject appear to have been written without a knowledge of the data which are available. Nearly half a century ago it was made known by men of no less authority than Mueller and Henslow that the bee visits the alfalfa flowers without effecting pollination.

Far be it from the writer to discourage the bee industry, especially in connection with such a valuable honey-plant; but the subject has been treated so frequently without due regard to the facts that it seems desirable to present a brief survey of the situation.

In order to understand the conditions it will be necessary to call attention to the flower structure. The stamens and pistil of each flower are enclosed by the two inner petals (which are united along the lower edge, and are known as the "keel"). The pollen-bearing portions are thus entirely concealed, and are not exposed to visiting insects. When, however, a pressure is applied inward and downward upon the keel petals, a certain tension is released, which causes the stamens to snap upward with considerable force. This may be readily observed by using a toothpick or other pointed object. If this pressure is applied by a bee, the pistil (which is enclosed by the united filaments of the stamens) is thrust against the insect's body, and pollen is rubbed upon the insect by the stamens. As the pistil projects slightly beyond the stamens, it is likely to receive first the pollen left by a flower previously visited.

The bee, however, rarely inserts its tongue at this part of the flower, but thrusts it between the two outer petals, leaving the stamens undisturbed. The bees are easily observed, and any one may satisfy himself on this point. In one trial by the writer at Manhattan, Kansas, in 1909, the visits made to 584 flowers were observed in about an hour. Of these, only nine were tripped by the bees.

Concerning the effectiveness of other insects, practically no data of value are available so far as is known to the writer. The insects usually mentioned are butterflies, bumblebees, and "wild bees." The butterflies are common visitors, but seem to be of very little if any value. Bumblebees, according to a few observations made the past summer, often reach the nectar in the same way as the honeybees, although they seem to trip the flower more frequently.

The wild bees are practically unknown except to those who have given them special study. Every locality with an average number of native plants has one or two hundred different species of these bees, so that the expression, "where insect life is scarce," is hardly applicable to many cases. By no means all of these are adapted to such a flower as that of alfalfa. In the limited observations which the writer has been able to make, the only bees which tripped the flowers regularly were the leaf-cutters (*Megachile*). These and their near relatives

may be distinguished by the fact that the females collect pollen on the under side of the abdomen. The species chiefly observed is nearly as large as the honeybee, and with a tongue of nearly equal length. Another common one is about one-half larger than the honeybee, and with a longer tongue. On the whole these bees seem better adapted than nearly all the others to this plant. The species are very numerous, and are found over nearly all the world.

Now that the probability of insect pollination has been reviewed, the necessity of it needs a little attention. To quote again the previous article: "At the Kansas Experiment Station, alfalfa plants covered with a wire netting * * made no seed, whereas those plants that were adjacent but uncovered were filled with seed-pods." This reference seems to be to bulletin No. 155 where some such statement is made, but without details or data. Another bulletin of the same station (No. 151) presents unmistakable evidence to the contrary. A careful study of the data presented seems to indicate that, while insects may be important, there are some unknown factors, physiological or otherwise, of greater consequence. All of the plants covered with wire cages, and left undisturbed, produced seed, but at greatly varying rates; those having but little, also being light producers in the open field. If a calculation be made from the plant producing the most, a ton of green plants would yield 8½ pounds of seed. On the same basis for five plants which were divided, half of each plant being covered and hand-pollinated, the other half permitted to be insect-pollinated, the average would be 10.4 pounds for the hand-pollinated, and 11.8 pounds for the insect-pollinated. Again, from twenty-six plants, hand-pollinated, the average would be 5.8 pounds, and the highest 68 pounds, per ton of fresh plants. There was also a great variation in the per cent of flowers producing seed, and this did not correspond to the amount of seed per weight of plant.

Burkill, who investigated the subject quite carefully in England, did not secure seed from untripped flowers unless he pinched or rubbed the tip of the pistil. He seems to have inferred that the striking of the pistil against the insect's body was an essential point. It is well known that injuries to plants often induce fruitfulness, and perhaps the dragging of an alfalfa-field may act in this way in addition to tripping the flowers.

This was submitted to Mr. J. H. Lovell, of Waldoboro, Maine, whom we regard as the best authority on the pollination of plants by insects, perhaps, in the United States. He has done a vast amount of field work in investigating the subject of pollination. He is an entomologist, a botanist, and at the same time a beekeeper. We have submitted this to him for his examination, asking that he give us his views for publication. At the same time, we suggested that, when a plant has nectar, color, and odor, it has these properties for a purpose—to invite the visitation of insects—bees in particular. Mr. Lovell's reply is interesting and valuable, and we think it shows conclusively that bees, so far from being of little or no value in pollinating the blossoms of alfalfa, are a very important factor in increasing the seed crop. We will now let Mr. Lovell speak for himself:

Dear Mr. Root:—Your favor of the 13th instant is at hand, with enclosures as stated.

I am sending a brief account of about all that is known in regard to the pollination of alfalfa up to the present time. Last summer I cultivated a bed of this valuable fodder plant in my garden for the purpose of studying the relation of the flowers to insects; but, unfortunately, the season was very wet, the leaves rusted badly, and few flowers were produced.

It is well established by numerous observations that honeybees do not usually pollinate the flowers of alfalfa, but obtain the nectar through a hole in the side of the flower. That is, there is an imperfection in the structure of the flowers which the keen observation of the honeybee quickly discovers. It can extract the nectar more easily through this crevice than in the normal way. So far as beekeepers are concerned this is an advantage, since a bee requires less time to gather its load of nectar.

The flowers are often pollinated by bumblebees, though they, too, sometimes pilfer the nectar; by butterflies and by leaf-cutting and mason bees. The two last-named genera, which are provided with a pollen-brush on the under side of the abdomen, are better adapted for this purpose than the honeybee. There are many species of the leaf-cutting bees (*Megachile*), and in certain localities they are so abundant as to defoliate trees. So far more than 24 species of wild bees have been observed on the flowers, besides many butterflies, flies, and beetles. Just how many are efficient pollinators is not known. Many are not. In South America the flowers of alfalfa are often visited by small birds resembling hummingbirds, called honey-suckers.

A single normal visit is sufficient to effect pollination, and all further visits are useless. The flowers are known as explosive flowers. The anthers and stigma are held in the keel under tension. When a bee presses down the wings and keel it pulls, says Burkill, two triggers and fires off the flower—that is, the anthers and stigma fly forcibly upward and out of the keel, and the pollen is thrown against the body of the bee—a kind of catapult. The stigma is a little in advance of the anthers, and strikes the pollen-brush of the insect first. Both of these organs then move upward against the standard, where they are out of the way and do not again come in contact with insects.

The flower should now cease secreting nectar, since nothing is gained by the attraction of further visits from insects; but here we meet with another imperfection, for the secretion continues. Insects, therefore, continue to visit the exploded flowers,

when it would be of much greater advantage to the plant species for them to visit exclusively flowers not yet pollinated.

The flowers can not be pollinated by the wind; and, according to Urban and Burkill, they do not possess the power of self-fertilization, even when the stigma is surrounded by pollen. According to the latter observer, the stigma does not become receptive in the absence of insects until it has been rubbed or scratched by a brush or a needle. The reason for this is, I believe, largely mechanical rather than physiological. The stigma is covered with papillæ, which may sometimes prevent the pollen grains coming sufficiently near to receive the stimulus necessary to excite germination. But when they are rubbed between the papillæ by the pollen-brush on the bee, germination promptly follows. A slight change in the conditions, which probably often occurs, as greater sensitiveness on the part of the stigma, or greater pressure, would induce self-pollination. Henslow records that plants he protected yielded more seed than those left unprotected. In cold wet weather the flowers wither without exploding. Where the vines are cut before they bloom, as is the increasing practice in the West, it is, of course, of no consequence whether the flowers are pollinated or not. When alfalfa is cultivated for its seed, there is, so far as I know, no complaint that the flowers are sterile.

Mr. Stevens says that he saw 584 visits made by "bees" (not by one bee) in about an hour, and that in nine instances the flowers were exploded or "tripped." It is probable that many of these flowers were already exploded. This observation is of considerable interest in showing that the honeybee is of real importance in the pollination of alfalfa; and it is to be regretted that he did not give the matter more attention, for Mueller never once saw honeybees visit the flowers legitimately. A man could hardly watch closely for an hour more than five square feet; and if in this area there were nine cases of pollination, then at the same rate there would be about 8000 on an acre of alfalfa, or in ten hours 80,000 flowers pollinated. It is to be remembered that only one visit is required, and that subsequent visits are valueless. Of course, such an estimate based on a single observation is to be taken with great latitude; but it indicates that the honeybee is of more significance in the pollination of this species than has been commonly supposed.

Even if the flowers of alfalfa can not fertilize themselves in Europe it does not follow that this is true in western North America. There are well-known instances

of flowers which, in one climate are infertile, becoming fertile in another. It has, moreover, been asserted that in Germany the flowers have the power of self-fertilization. In experiments made at the Kansas Experiment Station, according to Mr. Stevens, plants covered with wire cages produced seed, though at greatly varying rates. But this difference seems to have been due to the character of the plants. There seems, then, good reason to believe that in America, at least in the western States, the flowers can produce seed, even in the absence of insects.

Mr. Stevens' article is in the main correct so far as it goes, but he seems not to be familiar with the mechanism of pollination, nor, as he admits, with the wild bees. The suggestion that there are some unknown factors which are more important than insects or self-pollination, if he refers to any thing more than weather or climate, is purely imaginary, and is an unnecessary supposition. The fact that the bees made so many visits in an hour would indicate that the flowers contained little or no nectar. It would require only a few seconds for a bee to thrust its tongue into the side of a flower, remove it, and pass to another flower. It would be an easy matter to count ten visits per minute, which would give 600 for an hour.

You are entirely correct in supposing that the possession of nectar, color, and odor are invitations given by flowers to insects; but the conditions may be modified when the flower is *not* cultivated in its natural habitat by the characteristics of the insects, etc.

JOHN H. LOVELL.

Waldoboro, Maine.

NATURAL WINDBREAKS THE BEST; BUT THEY CAN NOT ALWAYS BE SECURED

BY R. F. HOLTERMANN

On page 181, March 15, it appears to me that Mr. Byer assumes that I said something which I have no intention of claiming. I have not compared the value of fences and natural shelter. There is no comparison, in my estimation. Natural shelter is desirable—very much so—and I aim to have it wherever I can; but, after all, the cases where sufficient natural shelter can be secured are rare. A great many people have to keep bees in certain positions from necessity, not wish, if they keep them at all; and the majority of these are *not* sufficiently sheltered. There are few locations wherein bees are now kept, and where we have a solid winter, to which I would not add a

fence as before described. A great many may not agree with me about this matter; but I have tested it sufficiently for my own satisfaction.

Our bees have wintered well; but some, I find, have starved owing to the open winter and resultant activity. To date, the least loss in an apiary is none (is that an Irish bull?), and the greatest, ten; the latter mostly starved. This latter was in the most exposed location, so far as natural protection is concerned, but it has a fence about it. Would the loss have been less if the fence had been down? I want *both* natural and fence protection.

QUEENLESS COLONIES GATHERING POLLEN,
AND STORING IT IN CELLS FORMERLY
OCCUPIED BY BROOD.

R. O. Martin, p. 180, Mar. 15, takes little stock in my argument as to queenless colonies gathering pollen because of the amount of pollen I find in the comb. Let me say again that my own eyesight, seeing the bees bring in pollen, is sufficient; but, more, the pollen stored in the combs is sufficient also. When I find pollen not in the cells about the comb, which is the natural position of brood, but all through the comb, not individual cells, but many, I am forced to the conclusion that the bees gathered it after the brood hatched from the comb. More, the distinction in this respect is so clear that I have pointed it out time and again (having the combs side by side) to young men learning the business. It is more than likely that, when I get among the bees, I shall find such combs; and if I do I will try to have a photograph taken of them, and send them to GLEANINGS.

If the bees can gather pollen after they are queenless and the brood hatched, then they place pollen in sufficient quantities where brood would otherwise be, it clearly indicates that this pollen was gathered after the colony was queenless; and the appearance of these combs is a direct contrast to colonies in the same apiary not queenless. In a locality scarce of pollen, these indications may not be so marked; but that has nothing to do with the question as to whether queenless colonies gather or do not gather pollen.

Brantford, Canada.

A Correction

In your editorial, p. 105, Feb. 15, you say, "while timothy hay, the kind referred to." By referring to my communication you will notice the kind of hay used by me was not mentioned, but *clover* hay, *not timothy*, was always used, as it is more springy or resilient—at least this is my experience.

Victoria, B. C.

E. E. ROBINSON.

Heads of Grain from Different Fields

The Robber-cloth Perfected

No doubt all users of the present robber-cloth have realized its lack of effectiveness in fully covering the open hive top at all stages of operations. I am pleased to present herewith for the benefit of other beekeepers, my original idea of a perfected robber-cloth as an aid to advanced bee culture.

By joining two cloths by means of a light stiff frame so proportioned as to leave a space of about $2\frac{3}{4}$ inches between the cloths, several new advantages are gained, and the duplex arrangement becomes positively effective in guarding the open hive top while convenient access to the frames is actually facilitated.

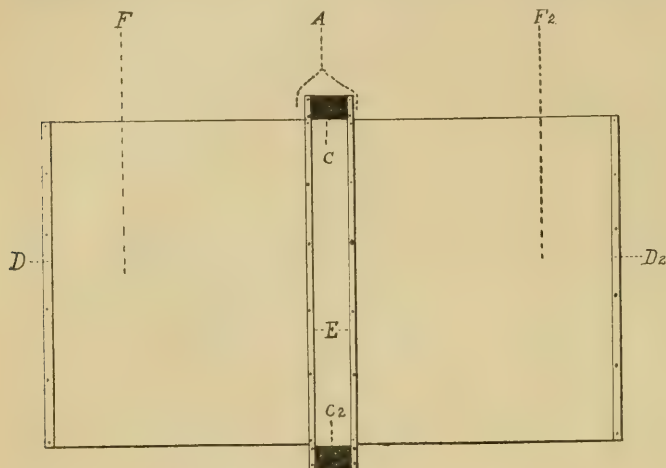


Fig. 1.

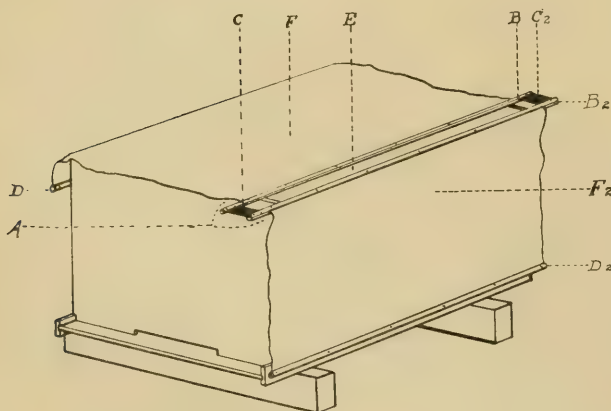


Fig. 2.

The drawings show the device so clearly that no description is really needed. In practical use the frame A is placed above the particular frame to be lifted, with each cloth lying flat away from the frame A. When it is desired to close the gap E, the frame A is grasped at either end by the finger and thumb,

and turned over, using either side as the axis. This movement draws the edge of one cloth over the other, thereby overlapping and closing the gap E. The reverse movement of the frame A again opens the gap almost instantly.

The edge of each cloth opposite the frame A is weighted somewhat by a hard-wood stick, an iron rod, or in any suitable way, so as to hold the cloth flat against the wind when the frame is turned. This frame A is best made from $\frac{1}{2}$ -inch dowels and two pieces of galvanized sheet iron. Three $\frac{1}{2}$ -in. holes are punched in each end of the iron pieces, through which to drive the clinching nails. The dowels are slit with a saw (a fine circular saw does it best),

but do not cut the pieces entirely apart until later. The reason will be evident when the job is further under way. Use flat-head thin wire nails just long enough to prick through. Place the selvage of the cloth next to the gap E, and hem all exposed raw edges. Proportion the cloths so that each will be an effectual cover by itself, large enough so that careful adjustment will not be necessary. An eight-frame cloth could not be used on a ten-frame hive.

This perfected robber-cloth is particularly useful in treating foul brood; but care must be taken afterward to sterilize it thoroughly before using again around healthy colonies. Two perfected robber-cloths are needed in practice, one for the hive being operated, and another for the hive to or from which frames are being taken. The perfection of this duplex arrangement is best appreciated under practical use. Any one is at liberty to make and use this new robber cloth, and it is my hope that it will be tried extensively, and that my expectations for it may prove well founded.

C. D. CHENEY.
Lyndhurst, N. J.

Spaces with Packing Material vs. Dead-air Spaces

It is generally conceded by carpenters that a dead-air space is warmer than a solid wall. I have no reason to doubt that it is; but I want the proof. I think it is proved that, with brick, stone, and concrete blocks, a dead-air space is warmer in winter than a solid wall; but that is *real* dead air. I mean that there is no air that can get through the cement blocks from the outside as I am sure it does through wood. A thermos bottle has the air pumped out, and contains only a vacuum, if I understand correctly. The same bottle with *dead* air would not be as good by a half—that is, to exclude either heat or cold for a long time. The thickness must be considered. A brick, stone, or cement wall with a dead-air space would be all the way from six inches to two feet

thick; but we can hardly compare the above-mentioned material with wood, straw, cork, and chaff. What I want to get at is a double-walled hive not too large, yet large enough to give the best of protection. Now, how to find out how much difference there is between one, two, three, four, five, or ten inches of air space or packing material—the difference between thick and thin outside walls, and also the difference between different kinds of packing material of different thickness.

EDWARD HASSINGER, JR.

Greenville, Wis., Feb. 17.

[Some twenty or more years ago some quite exhaustive experiments were made. It was then shown very conclusively that a dead-air space, so called, was not nearly as good as a space packed with packing material such as chaff, planer-shavings, forest leaves, or any material that will break up the circulation of air. The trouble with the so-called dead-air space is that the air is *not* dead. It comes in contact with the outside wall, which is cold, circulates over to the inner wall, which is warm, making a constant circulation carrying the cold air from the outside to the inner wall, thus making a continuous circulation. Now, the purpose of the packing material is to *break up* this circulation, so that the air *can not circulate*. There will then be a cold layer of packing material next to the outside wall, and a warm layer next to the inside wall. This matter has been tested very carefully by the builders of engines, who place packing material like asbestos between the outer and inner walls of the cylinders. The matter has been tested so thoroughly and carefully by scientific men that we do not believe there is any question that a given space containing packing-material is a great deal better than the so-called dead-air space. But a dead-air space in building-blocks is a good deal better than solid blocks, for the simple reason that a stone block will carry the cold clear through into the inner wall, where with the dead-air space the cold is not carried quite so quickly. A dead-air space is better than nothing; but if a building-block had packing material placed in those spaces it would make the building much warmer.

We don't know whether a solid block of wood would be colder than a hollow wooden block with dead air.

In the case of a thermos bottle, there is, as you say, no air between the walls, and, of course, there can be no circulation to cool the inner wall.—Ed.]

Cayuga County Convention

The annual meeting of the Cayuga Co. Beekeepers' Society, March 12, was well attended. Several speakers from abroad were present, and added interest to the occasion.

Mr. Irving Kenyon, of Camillus, N. Y., Secretary of the New York State Beekeepers' Association, gave a brief review of the fall meeting of that association, bringing out the points of interest. He also gave an address on the production of extracted honey, explaining in detail his own elaborate method, in the course of which he exhibited a device of his own invention for fastening foundation in the sections for comb honey; also an electric contrivance for imbedding wire into the foundation, and a very ingenious and rapid method of fastening the wire into the shallow frames. He uses the steam-heated uncapping-knife, and likes it very much.

Mr. Kenyon has been so successful in producing extracted honey and in marketing it at a fancy price, that it was a surprise when he incidentally remarked that he was going back to the production of comb honey.

The address of Charles Stewart, of Johnstown, N. Y., "What can beekeepers do to help the inspector?" was very practical and pointed. He said we quarantine apiaries as doctors do their patients;

but the inspector is at a disadvantage, as his patients can fly, while the doctor's can not. For this reason it is hardly fair to expect the inspector to stamp out contagious diseases in a year or so when doctors fail to do so. He called attention to the fact that the foul-brood diseases are more virulent at the start, and gradually become milder and less to be feared, as in the case of smallpox, etc., with human beings. He considered the Italian bees most immune, or best able to resist the disease, and advised Italianizing, even before the disease gets a start. One can help the inspector by writing to him on the least suspicion of any trouble in the yard, and not waiting for the inspector to look him up.

Mr. Stewart advised getting rid of old combs by melting into wax, and using full sheets of foundation. It is a paying investment, as the bees gnaw away a good part of the old combs, and the wax is thus lost.

The address of S. D. House, on hives and fixtures, was an eloquent plea for the use of the sectional hive with a short shallow frame. When one or two sections are added, the hive presents the form of a cube, which is the condition nearest to nature. If his arguments failed to convince his hearers that his hive was the best for all purposes and places, he *did* impress all with the fact that his success as a comb-honey producer is indisputable evidence that his hive is the best for his own locality under his skillful manipulation.

The convention adjourned at five o'clock, the same officers holding over.

Ithaca, N. Y.

E. D. DRESSER.

Kansas State Convention

The tenth annual meeting of the Kansas State Beekeepers' Association was held in the Commercial Club rooms, and was largely attended on February 4.

The address of welcome and transaction of reports of last year's meeting took up the greater part of the time.

On February 5 there was a large attendance at both meetings. Talks were given by Prof. George Dean and Prof. S. J. Hunter, both of which were highly appreciated by those present. Dr. G. Bohrer, of Lyons, Kansas, O. S. Mullin, of Holton, and Arthur Small, of Topeka, read a number of articles of interest to beekeepers.

The following officers were re-elected: President, P. R. Hobble, of Dodge City; Mrs. J. D. Smith, of Troy, Vice-president; O. A. Keene, of Topeka, Secretary and Treasurer.

The meeting adjourned with a unanimous vote of thanks to the Commercial Club, after which a half-hour was spent in visiting, then to the banquet-hall, where hot biscuits and honey were served.

O. A. KEENE, Sec.

Why Some Larvæ Are Not Sealed

I have been watching my bees and their brood for a number of years for foul brood; and by doing so I find during the breeding season lots of young larvæ that the bees fail to seal; and when I look again they are gone, but others still there again. They are left until they are perfect-looking bees, only a little small. Now, what do you call it? or why do they fail to seal them or take care of them? Is it on account of stores or cold chilly weather that they get chilled for them, and die before they can attend to them? I never could catch on to it right; but it should be prevented in the spring.

Richfield, Pa.

W. S. NEUMOND.

[During certain seasons of the year, and sometimes in certain particular colonies, we find what we call "bareheaded" brood—that is to say, the bees fail to cap over or seal up the young larvæ. This may remain for a considerable time. It indicates no bad condition; in fact, so little of it occurs

that we pay very little attention to it. But what you describe is evidently of a different character. It would indicate that it was starved or chilled brood. Sometimes there is a scarcity of pollen, and the young nurse bees are not able to feed the young larvæ properly. The result is that some of them die. It is removed, and then the queen lays again in these same cells.

A sudden cold spell coming on may cause the brood at the outer edges of the cluster of bees to become chilled and die. This will be subsequently removed by the bees; and, shortly after, other young larvæ may be found in their places.

The condition described does not indicate any disease; for if there were any thing of that character you would find it spreading to other hives; and not only other hives, but all through the colony where the first cells were found.

It might be possible, however, that it is a case of sacbrood, as recently described in GLEANINGS.—Ed.]

Cube Sugar for Winter Stores

This is my fourth winter's experience with bee-keeping far enough south to winter bees in the open, in single-walled hives, in Missouri, North Carolina, and now in Alabama. Until this winter, I just laid the cubes of sugar on top of the brood frames in a pyramid with a burlap sack over it, with burlap extending out over all four sides of the hive. I then put on a super which surrounded the sugar pyramid, then I filled in the vacant spaces in the super with dry leaves, and put on the cover.

The last two winters in Alabama my plan has been more simple. I removed two combs from the side of the hive, and filled the vacancy with cube sugar, as we had some "warm weather late in January. I examined all the colonies thus fed and found the bees piled all over the sugar, eating away at it as busy as hogs in a pit of corn.

Both you and Mr. Miller agree, p. 816, Dec. 15, that there is moisture in the hive. What about the bees having saliva to moisten their dry food? And how do they feed on hard candy? and I think even rock candy has been recommended for winter feed. The cube sugar will not melt nor run down on the bees if used above. And the bees will use it for brood-rearing in the spring. And, oh how nice and clean it is to feed, and how simple the problem! My experience covers territory only where it is warm enough to permit the bees to take a flight every few days. It is a boon for the South.

Later.—My weak colonies that were fed loaf sugar came through the winter safely. They not only wintered on it all right, but reared brood. Of course, when the bees could work outside I began feeding syrup.

Letohatchie, Ala.

W. N. RANDOLPH.

[While it is true that bees have a saliva, it should not be forgotten that, if they are to be confined for a period of three months on dry comb and dry cubes of sugar, without any means of getting water, there will not be very much saliva, for saliva is mainly water. But a colony in an ordinary winter repository will give off enough moisture so that the bees will have enough to make their "mouths water" when they approach a cube of dry sugar.—Ed.]

Early Spring Honey Saved for Winter Stores

In my locality we have a considerable early flow from fruit-bloom, dandelion, and willow, so that most colonies will nearly fill a shallow extracting-super from it. This early dark honey is a positive detriment when it becomes mixed with the clover, as generally happens. I have considered the plan of taking off this shallow super of early honey just before the clover flow, and reserving it for winter stores. The super could be set bodily on the hive

and left so for winter. Most of our wintering here is done on buckwheat honey, and I should like to know whether this fruit-bloom, dandelion, and willow honey, if well ripened and sealed, and finished off with buckwheat, would be safe for wintering. Buckwheat gives good results here for winter stores.

Stouffville, Ont., Feb. 15.

F. L. POLLOCK.

[We feel quite sure that the dark honey which you mention will be safe for winter stores. Whether it will be as satisfactory as stores made of sugar syrup is another question; but we rather doubt it.—Ed.]

A Package Wanted for Sending Honey by Parcel Post

We have watched GLEANINGS to see if any plan had been devised for sending honey by parcel post; but up to date, we have seen none mentioned. It would seem to us a package holding from one to 10 lbs. of honey, extracted or chunk, with a covering making it safe in the mail, could be produced profitably. We are told that honey is thus carried by post in Germany, and possibly ideas could be gotten from there.

In case of chunk honey the difficulty would be to secure an opening large enough to admit the honey, and that could be quickly and safely closed. The package ought also to be inexpensive; for while a few people will pay fancy prices they are the ones who use but little honey. The real consumers who take the bulk of the product are those who buy it as a food and not as a treat. So the price must be kept so as to be but little above what people are in the habit of paying for honey delivered. Of course, comb honey, as such, can hardly be sent in this way—at least unless the Postoffice Department handles it more carefully than the express companies do, which could hardly be expected.

THE ROCKY MOUNTAIN BEE CO.

Forsyth, Mont., Jan. 26.

[See answer to this question in the editorial department, this issue.—Ed.]

Growing Alfalfa at High Altitudes

Is it possible that bees do not work on alfalfa in high altitudes? I failed to see one bee visiting it at this point. This town of Portales is in a wide valley, and the altitude is nearly 4000 feet. If any readers of GLEANINGS have had experience in this I should like to hear from them. I fear this is a poor place for beekeeping.

Portales, N. Mex., March 2.

J. W. HOUTZ.

[We know that alfalfa grows readily in altitudes of five and six thousand feet high. We are not positive of its being grown in altitudes of seven and eight thousand, although perhaps some of our subscribers might be able to give us information on this point. But alfalfa grows very luxuriantly around Denver, and Denver is supposed to be about a mile above the level of the sea, so we see no reason why it could not be grown at an elevation of 4000 feet. Of course, alfalfa requires water; and at that elevation it might require irrigation to do well.—Ed.]

Cottonseed Meal as a Substitute for Pollen

Mrs. H. Millard, Feb. 15, page 131, recommends feeding aluminized sugar when pollen is scarce, in an experimental way. Let me suggest to her to try first feeding cottonseed meal. I have never read of any one trying the use of cottonseed meal as a substitute for pollen; but the editor suggests the use of rye meal as being more practical. It appears to me that, if rye meal were rich enough, cottonseed meal (which is much richer) would be better. By baiting your pan of cottonseed meal to attract the bees' attention, they will find it sooner.

Rocky, Okla.

KOS HURST.

Our Homes

A. I. ROOT

A BRIEF MENTION OF SOME OF THE GOOD MEN AND WOMEN WHO EXTENDED TO ME A HELPING HAND IN MY CHILDHOOD.

The article following was given in our local paper, the *Medina Gazette*, in answer to a request from the editor that I give him something in regard to my childhood. Before starting off for Florida I told our good people here that, in case a Home paper should not be on hand, as has happened several times during the winter, they should use this in place of it.

When I was nine or ten years old I climbed up to the top shelf of our bookcase and got hold of an old doctor book. I think the title was "Domestic Medicine" or something like that. The reason why I tackled the "doctor book" was because I had read and reread almost every thing available in that frugal home in Mogadore, Summit County, O. There was a family of seven children—three older and three younger than myself. I had read all the schoolbooks, for the younger and older ones, all the newspapers I could get hold of, the family almanac, and a good part of the dictionary. Well, the fore part of this old doctor book did not interest me particularly; but along toward the last part of it was an article on "electricity." It was almost my first glimpse of this strange force that has interested me more or less from that time to the present. This old book, among other things, told me how easily this wondrous power could be invoked by means of a roll of brimstone or a stick of sealingwax. At that early day (about 1850) what few letters were written were mostly sealed with wax. Later, wafers were used. By rubbing sealingwax or brimstone with a piece of warm woolen cloth, especially in frosty weather, I made my first acquaintance with electricity and electrical attraction and repulsion.

After I had read over and over all the doctor book had to tell me I questioned my father and mother, and everybody else, about electricity until I fear I was a nuisance. Finally an aunt of mine, who was attending "high school," informed me that her "philosophy book" told a good deal about it. It was then that I made my first acquaintance with "Parker's Natural Philosophy;" and over and over I scanned the pages that gave information in regard to this subtle element in nature. A little later on, in order to supplement the funds of our humble home we commenced to keep boarders. One of them was a schoolteacher, and another was a miller. Of course those two good men had to be "pumped dry," on electricity. Mr. Fairbanks, the school teacher, said I ought to study chemistry.

"What is chemistry?" I asked.

Well, this particular friend, whom I shall always remember, replied something like this:

"Why, my young friend, chemistry not only tells about electricity but discusses the nature of the elements of which this world is composed. I have an old chemistry somewhere that I will look up, and you may have it if you care for it."

The book was entitled "Conversations of Chemistry," or something like it. I not only devoured this book from cover to cover but a neighbor's lad of about my own age took it up with me. He lived about a quarter of a mile away, and we two each had a "laboratory" off in a shed or some basement, and the experiments we performed with our rude home-made apparatus were surprising.

This neighbor's boy was named Corwin Purdy; and when Corwin had made some "great discovery" he would run as fast as his legs would carry him after me, and we two would go back again in breathless haste. I had been trying to make a voltaic pile of copper, zinc, and moistened cloth, using the old-fashioned copper cents. But my voltaic pile did not "materialize" very much. But Corwin found an old copper teakettle, ripped it open, and hammered the sheets out flat. Then he cut them up into pieces about two inches square or more, and made his pile of copper, zinc, and cloth. These squares of woolen cloth were soaked in slightly acidulated water; and when he succeeded in getting a real electric shock he ran for me so much out of breath that he could scarcely talk.

Our craze for chemistry soon brought us in contact with the village doctors, and they loaned us a helping hand. I remember distinctly Dr. Ferguson and Dr. Parleyman. The Rev. Mr. Hughes, the minister, also encouraged us, and placed his whole extensive library at our disposal. The village miller took the *Scientific American*; and when the boy of only nine years of age wanted to "borrow" his back numbers he demurred a little. Finally he said, "Why, my young friend, if you are really going to be a reading man, I have a whole year's back numbers of the *Scientific American* bound up after a fashion, and I will loan them to you."

I have been in close touch more or less with the *Scientific American* now for more than 60 years; and I can tell you it has been worth to me a great deal by way of posting me in regard to true science and better methods of sifting the wheat from the chaff.

But chemistry and electricity were not my only craze. I seem to have been a natural explorer. I watched the hens and chickens as well as nature's display whenever there was a thunderstorm.

Let me digress a little right here. My love for books, and my extensive reading, enabled me to read, write, and spell, without giving very much thought or care to either unless it was the writing. In those old days we learned spelling in a long class, the best speller going up to the head. Well, while the other pupils were poring over their spelling-books I had no spelling-book at all. I did not need any. It seemed to be a natural gift for me to be able to spell. I not only loved books but I loved the queer crooked spelling that fixed itself in my mind without any effort. Of course, we all know about the cranks on spelling, and sometimes they can "spell" without being able to do much else. Well, on the last day of the school I was at the head as a matter of course. The trustees or directors were on hand on examination day; and after hearing me spell, one of those dignitaries made a remark something like this, pointing his finger at me:

"There's a boy who studies his spelling-book."

At this sally there was a queer smile, not only on the faces of the pupils in the class but on the teacher's face also; and I do not know but there was almost a titter among all the children. It was because they all knew that I had no spelling-book and had never looked into one during the term. Well, notwithstanding the above, I was awarded the prize—a "two-shilling piece." Nowadays it would be called a "quarter."

After school was out I told my good mother I wanted to invest my prize money in something that would grow, and finally we decided on a couple of laying hens. In those days they were only a "shilling apiece." Now, my good grandmother, who lived two miles and a half south of Mogadore,

in a big brick house, had some yellow hens which she greatly prized. Two of them had a habit of getting into the cellar kitchen and laying their eggs in the old brick oven. Of course they had to lay them outside when baking day came around. Well, I walked two miles and a half down to grandfather's, and found nobody but him at home. He sat in his chair in this old "cellar kitchen." Now, grandfather Hart and I were good friends because he was at work on a perpetual-motion machine, and I was greatly taken up with "seeing the wheels go round." I was so full of my particular enterprise that I walked up to grandpa and showed my spelling prize. I think there was a hole through it, and a red or blue ribbon was tied to the coin. I told him I wanted to swap my prize money for two laying hens. The two hens were standing in that brick-floored kitchen at the very time we were talking. He approved of my speculation, and told me if I wanted hens that would be sure to lay I had better take those two cream-colored "biddies." They were so tame I had no difficulty in getting one under each arm, and then off I started on my trip of two and a half miles. But by the time I displayed my two treasures to my good mother I was pretty tired and dusty, for the hens became heavier and heavier as I hurried along, barefooted and barelegged.*

Did the hens lay after being transferred to a new home? To be sure, they did. All the hens I have ever kept always laid. When I got down to my Florida home a year ago my flock of 50 or 60 laid only about half a dozen eggs a day; but they commenced laying, one after another (as soon as I got around), right along, until I had upward of 40 eggs from 60 hens. It was because I loved them and made friends of them.

Well, just here I am ready to introduce another friend who lent me a helping hand. He was the village schoolmaster; and let me say right here that, after my two hens got to laying nicely, a neighboring woman said she had a Black Poland hen with a brood of chicks, and they were making such a mess with her garden and flowerbed that she would sell me "the whole shooting-match" for another "two shillings." By this time I had sold eggs enough to be able to purchase the hen and brood; and, oh what a delight and joy was that mother-hen with her brood of white top-knotted Polands! From that day to this the sight of a real top-knot Poland makes my heart bound.

Well, the schoolmaster suggested I should "keep books" to see whether my poultry paid expenses instead of "eating their heads off," and hence he suggested that the latest up-to-date manner of keep-

* My! but did not grandma make a fuss when she found her two favorite biddies were gone? She said Amos must bring those two hens right straight back; but when she came to Mogadore and found what a nice house and yard I had for them she changed her mind, especially when she considered it was her favorite grandchild who had appropriated the two cream-colored hens.

Even at that early age I had caught on to the secret of making the hens lay in winter; and one time in January when there were no eggs in the market, a rich man by the name of Moore sent word that he would give me 25 cents for a dozen eggs. I think the regular market price was 8 or 10 cents in those days. Well, I hurried off, full of animation and delight, with my eggs. But I did not cover them up properly, even though it was zero weather; and when I reached his home two or three of the eggs had frozen and cracked open. I thought, of course, I would not get my 25 cents, and began to cry—perhaps partly on account of the cold; but he said, "Do not cry, bub, here is your money. The eggs will be exactly as good for us, for we will keep them frozen until we want to use them." Then I wiped away the tears and rushed back home to give the hens credit, in my double-entry book-keeping.

ing accounts was double entry. By the way, this good friend also taught me penmanship, and during the winter, when eggs got up to a big price, my double-entry book-keeping was all over on one side of the ledger. It was all profit and no loss.

I might mention, as a sort of side issue, that I had an older sister who was not only bright but fairly good-looking. In fact, she taught school when she was only 15 years old, and a country school at that. Well, one day the schoolmaster, in talking to me about my chemical experiments, said he thought he would come over after school and see my "apparatus." I remember I was a good deal disappointed. I told my mother that I did not believe the schoolmaster cared very much about chemistry after all. He did not seem to notice any thing very much except that older sister I have been speaking of. After a while they were married, and, of course, all the family were expected to be present at the ceremony in the evening. But that night there was to be an "electricity show" at the Methodist church. I had already become acquainted with the professor; and the idea of my missing the show simply on account of so trifling an event (!) as the marriage of my sister was preposterous. I had always been a very obedient child; but I then and there decided "things had reached their limit." There was really a prospect of a thunderstorm right there, besides the one over at the church, unless I could be let loose at "early candle-lighting;" and so the marriage was performed before the candles were lighted instead of after.

Now, all the above looks as though I was a model boy, does it not? and I know of one little woman who may make a fuss if I do all this bragging of what a precocious youngster I was, instead of telling a little something on the other side; so, before closing let me show you that I was not much different from other "kids" of 10 years, after all. The good miller who loaned me those old copies of the *Scientific American* gave me the sweepings of the mill to feed my chickens to pay for sweeping up the mill. Well, there was sometimes a little wheat scattered on the floor; and notwithstanding all his kindness to me I was not always very conscientious about letting some good grain get mixed in with the mill dust.

Once more, the good preacher who gave me access to his library had a couple of hives of bees, and these hives had "glass drawers" on top. Some wicked boys went in after dark and pulled out one of those drawers; and as I passed by they told me what they had done, and asked me to "have some honey." Even if I was not a "thief" I was at least a "partaker," to a small extent. I am glad to tell you that my conscience troubled me about it, but not enough so as to cause me to go to the good man and confess.

Once more, the good doctor who was such a good friend of mine had a fine tree of Red Astrakhan apples near the fence. With some other boys I went there after dark and helped to pilfer his apples when he had only that one tree. It is true at this very time I was attending Sunday-school regularly, and learning "verses;" but somehow they did not seem to take hold of me at that age in a way that one of older years might suppose they ought to have done. A. I. Root.

NATIONAL "RACE SUICIDE."

And God said unto them, Be fruitful and multiply, and replenish the earth and subdue it.—GEN. 2:28.

What is the use of being patriotic, what is the use of being progressive, what is the use of fighting for one's country and nation, if there are to be no children to take

our places when we are dead and gone? The above was suggested by the following brief note from my long-time friend W. P. Root:

Mr. Root:—I enclose a clipping that is too important to lose. The closing up of it is especially interesting. We are often told that in France, where light wines are used, intemperance is practically unknown; and yet here we see it threatens to exterminate the nation. Experience teaches a dear school, etc. It is worth reprinting. I found it in the *Leader* last night, Nov. 24.

Below is the clipping. Read it and ponder. Is there any moral to it for our own United States of America?

FRANCE HELD MENACED BY DECREASE IN BIRTHS.
RECORD SHOWS 742,114 BABIES IN 1911—100,000 LESS THAN IN 1901, AND EXCEEDED BY DEATHS; LEGISLATION SOUGHT TO BALK DEPOPULATION.

PARIS, November 23.—The birth rate of France was lower by more than 100,000 in 1911 than in 1901. Louis Klotz, minister of finance, announcing this fact to the commission on depopulation at its first session to-day, said:

"Military inferiority, economic inferiority, and the diminution of the power of France in the world, will sooner or later be the inevitable consequences of the sterility of our nation."

The number of births last year, according to M. Klotz, was only 742,114 in the whole of France, against 857,274 a decade ago. In 1907 and 1911, he said, the deaths actually exceeded the births. This was, he continued, a sad state of things, and a great danger to the country, placing France in a situation of inferiority in comparison with the other great nations. The lower birth rate, while a perplexing phenomenon among all civilized peoples, was, the minister said, a greater problem in France than elsewhere.

The births exceeded the deaths in 1910 in Germany by 879,113; in Austria-Hungary by 573,520; in Great Britain by 413,779; and in Italy by 461,771; but in France by only 71,418.

In the course of further remarks, M. Klotz reviewed the ineffective government and private measures taken in the past to help parents of large families to limit the hours of work of women about to become mothers, and to reduce infant mortality. It was necessary, he said, to study these and other factors, including the evil effects of alcohol. The relation of drunkenness to infant mortality would, he declared, in future be studied in every part of France.

High-pressure Gardening

DASHEEN UP TO DATE.

At this date, March 24, some of my dasheens, planted about January 1, are nearly two feet high, with leaves a foot long and eight inches wide; and I find the plants are much the largest at the lower end of the row where the ground is a dark mucky sand, and quite moist, although the plants are almost over a tile drain. I am sure our readers will be interested in the two following letters, especially the first, from the Department of Agriculture.

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY.
Foreign Seed and Plant Introduction.

Washington, D. C., March 19, 1913.

Mr. A. I. Root:—Your letter of March 1 was received some days ago, and we are glad to note that you are so well pleased with the dasheen. I thank you very much for the proof sheets of GLEANINGS, in which your article concerning the dasheen appeared. I was personally much interested in the part of the article that preceded the one on the dasheen.

In accordance with your desire we have arranged to send you from our station at Brooksville, Florida, seven pounds of dasheens under our number 15395. A sheet of cultural directions is herewith enclosed.

Very truly yours,
R. A. YOUNG, Scientific Assistant.

Mr. A. I. Root:—In response to your recent communication regarding dasheens I will say that our company has a quantity of dasheens for planting this season; but we have not figured on selling very many, as they are in demand here. Last fall we built a warehouse for them, and have been keeping them stored, and they are now in good shape. It would require about five bushels to plant one-fourth acre. We could spare you five bushels at \$2.00 per

bushel, f. o. b. Brooksville, for seed. Less quantities, \$2.50 per bushel.

BROOKSVILLE DEVELOPMENT CO.

Brooksville, Fla., March 19.

I was agreeably surprised to find the price already as low as \$2.00 per bushel. As Irish potatoes are almost if not quite that at retail here now, it is no wonder that many families at Brooksville are using dasheen in place of potatoes. Our good friend Irving Keck, who has just paid us a visit, says Dr. Kellogg, of Battle Creek Sanitarium, has just bought a carload at Brooksville, for their invalids and guests. Now, with all this great excitement going on, how is it possible no great seedsmen as yet advertise dasheen?

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY.
Office of Foreign Seed and Plant Introduction.
CULTURE OF THE DASHEEN.

The dasheen requires rich sandy soil, very moist, but well drained. The plants will not be greatly injured by occasional flooding of the land for a short period. Such lands as the so-called hammock lands of Florida are especially adapted for the cultivation of this crop. Any low-lying, sandy lands fairly well drained, but still too wet for general field crops, can be used to advantage. On these low lands it would be advisable to plant on ridges.

For best results a liberal amount of well-rotted stable manure should be mixed with the soil. Where the soil is very sandy, it is well to add a fertilizer rich in potash. Planting should be done as early in the spring as conditions of soil and climate will permit. This may be as early as the first of February in south Florida, and as late as the middle of March or the first of April in the Carolinas.

For field culture the tubers are planted, singly

and entire, from two to three inches deep in hills at a distance of three feet, in rows four feet apart. This will permit horse cultivation. During the summer, in cultivation the soil should be gradually drawn to the plants and the plants kept free from weeds. They usually require little cultivation after becoming large enough to shade the ground. Well-grown plants will reach a height of $4\frac{1}{2}$ to 6 feet or more in midsummer.

The crop matures in about seven months, although the tubers can be utilized for home use in six months or less from planting. Harvesting of the main crop may be deferred a month or two if desired; but if it is to be done at one time, in order to have warm dry weather for the dasheens to dry properly on the ground it should not be delayed till danger of frost. Maturity of the crop is usually indicated by a partial dying-back of the plants some time in October. It will sometimes prove advantageous, in practically frost-free localities, or where the roots can be protected, to leave them in the ground until wanted for use or until spring.

A ten-inch plow has proved satisfactory for turning up the plants when the area grown is large enough to justify its use. The plants are then grasped by the tops, and the clumps thoroughly shaken to dislodge as much of the soil as possible. They can then be broken apart by means of the tops, and, in dry weather, the tubers, with tops still attached, be left on the ground to dry for 4 to 6 days. The tubers should not in any case be exposed to frost.

Dasheens should be stored in a dry place of moderate temperature where the air can circulate freely among them, or they may be placed in dry sand or earth.

Wesley and I are now as busy as bees getting that quarter-acre ready for the tubers; and to make room we had to dig the wonderful Red Triumph potatoes I told you about. They didn't go all to vines, as Mrs. Root feared—not much. We ate and gave the neighbors quite a few, and have just sold three bushels of great beauties at \$1.50 per bushel. Poultry manure did it mostly, assisted by a damp soil that holds moisture, even right over the tile drain; and, thanks to a kind Providence, no frost but plenty of rain.

MY POTATO STORY.

A year ago, or perhaps a little more, you remember that I had a good deal to say about growing potatoes in the back yard. I said you could not only keep chickens in the back yard so as to help out quite considerably, but you could also grow potatoes; but, of course, I didn't mean that you could grow potatoes and chickens in the same yard. When I got home to Medina last spring I undertook to "practice" what I had been "preaching;" but although my ground was well underdrained, the exceeding wetness of last summer hindered largely. Another thing, I couldn't get any early potatoes to plant. After exhausting attempts in our neighborhood I sent to one of the leading seedsmen in Cleveland and told him to get me some extra-early potatoes—

Early Ohio or Bliss Triumph—if possible. The only answer they gave was to get me a bushel of *Early Rose*, and these had to be shipped by express from away up in Michigan. Just think of it, will you?—sending to Michigan for potatoes, and paying \$2.00 a bushel and express charges, and then being unable to get any thing better than *Early Rose*! Although the *Early Rose* was not much of a success we decided to bring some of them along with us when we came down to our Florida home, about the first of November. While potatoes were then 40 cents a bushel in Ohio they were 40 cents a peck here in Florida.

The potatoes here in Florida offered for sale in the groceries were not only 40 cents a peck, but they were of a very poor quality at that. In fact, Mrs. Root had sometimes to pare off and throw away almost one-half of the peck of potatoes for table use that cost us 40 cents.

Now, with this condition of affairs I declared I would plant some potatoes just as soon as I could get a piece of ground ready in the garden; but then the same question came up again, "Where can I get seed that will grow?" Potatoes brought down from the North, and planted here in Florida in November or December, of course, would not grow at all. As we had this same condition of affairs a year ago I decided that I would come out ahead this year any way. Before I left here last April we dug two or three bushels of nice Triumph potatoes and packed them in dry sand in our incubator cellar, having been told they would keep nicely this way, and be sprouted all ready to plant when I got back in the fall. It would have turned out all right had not the rats discovered the potatoes; and when we got back here there was only a great pile of worthless skins. The rats had eaten them all. I ought to have had sense enough to surround my potatoes buried in dry sand with inch-mesh poultry netting; but we shall only have to live and learn a little. It was along in December before I was enabled to get any potatoes suitable for planting at once in Florida. I scanned the papers and catalogs; but along toward the middle of December my good friend down at the dock, Mr. S. C. Corwin, advertised Triumph potatoes ready to plant. I went down at once and got about a bushel. The price, of course, was pretty well up—\$2.00 a bushel. They had just begun to show sprouts, and were just right to plant. I was so much in a hurry to get my potatoes to growing that I planted half a dozen hills after dark.

Now, before I proceed to tell you what

happened to those half-dozen hills, I want you to listen carefully to the following:

Some two or three years ago I became so well aware of the need of underdrainage here in Florida that I spent about \$25.00 in hard-burned tile (I think brought from away up in Georgia) to underdrain a part of my garden. Well, when I got here in November I found a tremendous growth of grass and weeds all over this garden spot where I had laid the tiles. I said to Wesley, "Wesley, I don't suppose it is possible for you to spade under all this trash."

He replied, "Oh! yes, sir. I can spade it all under nice and clean if you want to have it go in."

I said, "Go ahead."

Well, I planted these half-dozen hills of potatoes right where he turned under all that grass. It had been spaded perhaps three or four weeks, and we had plenty of rain, so it was well under the work of decay. You remember what I said about planting whole potatoes to get some extra early. Well, in order to *practice* what I have been preaching I selected half a dozen great big nice Bliss Triumph potatoes, with sprouts just showing as I told you, and planted them right over the underdrain, and right in the midst of this nice decaying grass and trash. In a few days they were up, and, oh how they did grow! I called in my friends and neighbors, and the visitors that came from the far North, and showed them my potato-patch. The vines were not only fine and luxuriant, but the leaves were so much larger than anybody ever saw potato leaves before, that people hardly knew they *were* potatoes. As I told you before, no sort of potato-bug or flea-beetle marred the beautiful nice green foliage. My neighbor Rood, who does every thing on "high-pressure" principle, said that *he* had never seen any better potatoes than mine. After they had been planted about five weeks, another neighbor (and also another bee-keeper) came and took a look at them, and he said, "Why, Mr. Root, there are potatoes down under those vines already." I told him I guessed not—that it wasn't quite time for potatoes; and, besides, no blossoms had showed themselves yet. But he stooped over and pulled back the dirt, and showed me potatoes as big as hens' eggs. When they had been planted six weeks we had potatoes as big as anybody would care for for table use. I haven't dug any whole hills yet, but I tell you there is going to be a tremendous yield. Mrs. Root kept cautioning me all the time that they were going to be all *vines* and no potatoes; but I tell you the ground is popping up on all sides, and

there is no mistake about the potatoes as well as the vines. I want to emphasize again the importance of turning under decaying hay, leaves, or trash of that kind. This gives the potatoes a chance to develop in their natural beautiful shape without being crowded and squeezed by hard unyielding soil.

Well, after planting the few potatoes we proceeded to fix the ground and put in more every few days. At first I began to fear that the immense growth and yield were owing to the fact that we had picked on a particular spot where there seemed to be partial—I might almost say natural—irrigation. But since then I have been trying these same Bliss Triumph potatoes at different points all over our five acres, and by the alligator cave I have some that begin to look now almost as promising as those up here near the house. You may inquire in regard to the fertilizer. Well, we put on only a very little fertilizer; but the spot where these immense potatoes are growing was where the poultry had been in the habit of scratching and digging and dusting for perhaps several summers past. This has probably much to do with it. Of course, other people are *now* putting new potatoes on the market, heaped up before the windows in our groceries; but the price, instead of being 40 cents a peck, is now 50 cents a peck, because they are new potatoes, the first put on the market.

Now a word to those who are writing me almost daily to know whether they can come down to Florida and make a living growing celery, grapefruit, oranges, etc. I think it is very unlikely that one brought up in the North can come down here and make it pay growing southern crops—at least not until he has had practice here and learned by experience; but I do think there are thousands of people who could come down here to Florida and make a good living growing *potatoes* if they will only take the pains to *do things right*, and take advantage of modern methods and discoveries. Let me go over them briefly.

You will first have to purchase tiles and get your ground thoroughly underdrained. The cement tiles that are used largely in many places don't seem to answer here. There is something in our Florida soil that rots or disintegrates them. I have lost quite a little money, and my neighbor Rood a good deal more, in investing in cement tiles. Secondly, you must have humus to grow potatoes here in this Florida sand. Thousands of people are burning up the trash in order to clear off their ground; but according to the Florida Experiment

Station it would be worth *nine times* as much if turned under and rotted the way I described in growing my potatoes. Again, you must have good seed, and you must give it good care. If you can grow potatoes successfully in your back yard or garden up north I think you ought to be able to grow them successfully here in Florida. I suppose you are well aware that hundreds of carloads of potatoes and other things are shipped daily from Florida up into the North. Just a little more about good seed.

When friend Corwin put his notice in the paper about "seed potatoes ready to plant" he also stated that this seed had been grown expressly for him for this *particular* season of the year. In order to have potatoes ready to plant, say in November, December, and even in January, they must be grown somewhere at a season of the year so they will begin to sprout and be ready to grow about the time when they are to be planted. There are certain seedsmen in the South who make it a part of their business to be able to supply potatoes ready to plant in the months I have mentioned. You must have the right kind of seed. If you don't you will fail. So far as I know there is nothing better in sight at the present time than the Red Triumph that I have spoken of. It is a most handsome potato; and when they are thoroughly ripe it is about equal in quality to any early potato we have. The Early Ohio might do as well down here, although I have never been able to try it. Let me mention right here that some years ago I happened to be present at a farmers' institute in a rural district, and a discussion was going around in regard to growing potatoes; and the farmers there in Ohio thought if they could be sure of 40 cents a bushel they were having a pretty good thing in potato-growing. As I had published a book on potatoes (or, at least, my good friend Terry and myself had put out the book), somebody inquired for A. I. Root. As I rose to speak I told the good people that I was afraid I wasn't enough of a farmer to be able to grow potatoes, and make it pay at 40 cents a bushel. "But," added I, "if you will give me 40 cents a *peck* I think I could get along right smart." This statement awakened quite a little uproar.

Dear friends, almost every one of you whose eyes rest on these pages, no matter where you live, can get 40 cents a peck for your potatoes if you set about it right now to get ready. Spread your seed potatoes out in the sun, at least a few of them, as many as you may want, in some place where they won't freeze, and induce them to put

out short stubby sprouts as quickly as possible. Then I think it would pay you to have a few cold-frame sash. Along the last of this month you can put the potatoes out pretty close together under glass; and along in March, in many localities, you can get them out under good rich ground prepared as I have outlined in this potato story, and have them ready to grow whenever the weather will permit. Should there come a frost it is an easy matter to give at least a few potatoes a little protection. The grain-sacks that are a drug here in Florida answer every purpose nicely. Rip up the seams and spread the bags over the potatoes just coming through the ground, and they will ward off considerable frost. When your potatoes are ready for market they will be quite a little ahead of those shipped from away down here in Florida, or Bermuda, or other lands.

About the nicest way to cook new potatoes, especially those that are only partially matured, is to boil them with green peas. That is just what we are having for dinner almost every day just now. Don't undertake to dig the *whole hill* of potatoes when they get so as to be fit for table use. Push your hand down through the hill in that rotted straw and hay that I mentioned, and pull out the potatoes as you happen to need them, and let the vines grow right on. Potatoes planted very early are very unlikely to be troubled with potato-bugs or flea-beetles, or any thing of that kind. Teach the children the trick of growing stuff under glass and they will soon not only be a great help, but it will be an excellent part of their education. As I write this the "corn-growing" boys are being discussed, especially in regard to their trip to Washington, as provided by the different States; and Florida is just now discussing the matter of offering her boys not only a premium but a trip to Washington also, for growing fields of corn that beat any thing their "daddies" ever saw or heard of. Now, let us all offer an inducement to get the boys to growing potatoes; and why not let the girls share in this industrial education as well? This has been taken up by agricultural papers, and it will be very strange if we don't find some girls who are just as smart as the boys, even in growing corn, potatoes, and other things.

COLORADO APPLES, ETC., BY PARCEL POST;
SOMETHING FROM OUR OLD FRIEND,

J. A. GREEN

Mr. A. I. Root:—I regret that our personal acquaintance has not been as intimate of late years as it was when I lived in Illinois and gave all my time to beekeeping, so that we occasionally met at

conventions. However, I have read with interest all your writings, and have not forgotten the old times. I am now engaged to a considerable extent in the fruit business, so I have been interested in your "apple talks" within the last several months. I have been packing and shipping apples for several days, and it occurred to me that you might like to see some samples of the apples we grow in Colorado, so I packed and shipped you to-day by parcel post a few apples. You will find the papers in which they are wrapped stamped with the name of the variety. First there is the Arkansas Black. We do not call this a very good eating apple; but its high color makes it sell very well—highest of all our apples this year, and it is also a very good keeper. I have kept them over a year in good condition in our cellar. Then there is the White Winter Pearmain. This, when at its best, is my favorite eating apple, though these are somewhat past their prime.

Then comes the Winesap, which is one of our principal varieties. A collection of Colorado apples would be incomplete without the Jonathan, so I send some of these, also the Grimes Golden, though I had nothing left but culls in either of these varieties. Of course we raise a great number of varieties here,

though there are only a few that are planted any more. Jonathan, Winesap, and Gano are about all that are planted any more, and I do not think many Ganos will be planted hereafter.

I should be glad if you could let me know how the apples stand their long trip. I have been wondering if the parcel post would help us to solve the problem of getting our apples to the consumer, and getting rid of the excessive profits charged by the middlemen.

JAMES A. GREEN.

Grand Junction, Colo., March 10.

The apples came to hand in excellent condition; but the postage was 72 cts. on 15 apples—not a very good showing for parcel post from *Colorado to Florida*. The wooden box (to make them safe) weighed 2 lbs., and the 15 apples 5 lbs. The Arkansas Black is a most beautiful apple, very hard and crisp, but not quite equal in flavor to the justly celebrated Winesap. The Delicious apple I have mentioned in a former article kept perfectly until March.

Poultry Department

THE HEN'S NEST AND NEST EGG.

On page 426 for GLEANINGS for July 1, 1912, I gave you sketches of a hen's nest as I would have it for our convergent poultry-yard. Well, I have just completed a series of six nests after this plan, and I want to tell you something of how they work. Before I had built my nests, the hens had been laying in a pine box in their roosting-house covered with burlap, by means of some barrel-hoops nailed to the sides of the box, and curved over the top. This particular nest suited them so well that six or a dozen hens were laying in it every day. After I put in my new nests with the dark alley for them to go through, with some nests nicely fixed with dried grass and nest eggs, the hens, when they were ready to lay, climbed up the little ladder and looked the nests over and spent quite a little time investigating, but they did not lay any eggs. Finally I noticed in one of the poultry journals that the hens had a great preference for laying where there is a nest full of eggs already, as their natural desire seemed to be to accumulate a nest full before wanting to sit. So I put several nest eggs in the new nest; but they went in, investigated, and spent some time cackling, but did not lay any eggs. Finally one day I took three warm eggs, just laid, from their old nest in the poultry-house, and put them into the new house along with the china nest egg. This seemed to have the desired effect, for they went to work and laid three or four eggs during the day in that same nest.

Now, you will notice I used the expression "china nest egg;" but, if I am correct,

when you go to almost any of the stores now and ask them if they have china nest eggs they reply, "Oh, yes!" and give you some eggs made of white glass. They seem to be getting thinner and smaller, until I should exceedingly wonder if any sensible hen would think of calling that a nest egg. They are also made so light that the hens knock them off the nest; and down here in Florida the skunks and opossums, when they come around at night to see if any choice eggs have been left in the nest, have the habit of biting them and crushing them to pieces. In fact, one moonlight night I caught a skunk snapping an egg around the poultry-yard and trying to bite it. When it would bounce and fly off he would try again. He seemed very much disgusted to find an egg so smooth and slippery that he could not crush it and get the richness inside. I have in vain asked keepers of poultry supplies for some better substitute. Of course we have such eggs advertised, and I bought quite a number of them; but they do not seem to be much better than the glass egg. They are heavier, and stay in the nest better; but when skunks or other vermin get hold of them they are easily crushed. I have an impression that some of the hens, discovering they are made of chalk or lime, or something of that sort, have been pecking them to pieces themselves in order to get material to make eggs, especially if they do not happen to be well supplied with lime or oyster-shells.

I do not like the wooden eggs (such as The A. I. Root Company used to sell years ago), because they are so hard to keep

clean. The paint or varnish, or whatever is used, very soon gets soiled, and the eggs get to be unsightly, and, very likely, unsanitary. There used to be years ago a genuine porcelain egg that was just about as heavy as a hen's egg, and was proof against all these troubles that I have mentioned. Can anybody tell me where I can get an egg that is porcelain—really porcelain in something besides name? Now, my new hens' nests, which I have taken so much pains with, have proved all right except in one respect. When there is a very hot day, for instance, the hot sun shining right direct almost at right angles on this lid that is to be raised up, makes it, I suppose, almost unbearable inside, because on such days I notice the hens going back to their old nests, and all piled into one nest, or else they stand and wait for their comrades to get through and give them their turn. Of course, I might have trees to shade my hens' nests; but it would be a little difficult to have shade-trees so the sun would not strike right squarely against some of the nests at a certain time of the day. And I am convinced that, a good many times, the hens desert their nests and go over to the bushes to lay just because the nests are too hot in the middle of the day in this southern clime. It is certainly one very great drawback to have the hens go off in the bushes, under the palmettos, or among this luxuriant foliage here in our semi-tropical land, and steal their nests. Eggs from stolen nests are not fresh, and seldom fit for market. Our government has been passing some strenuous laws in regard to taking eggs to market that were not healthful or suitable for the market. All such eggs can be used at home; but when too many of the hens get to going out among the bushes it gets to be a serious matter. Some poultrymen, I know, take the ground that there is no need of nest eggs of any sort; but they certainly have a very great influence in getting the hens to lay *where* you want them to instead of in some out-of-the-way place where the eggs may never be found at all. Where hens are confined, and do not have unlimited range, it isn't so very important to have nest eggs. But I want my hens to enjoy themselves and be happy, and I want them also to lay where I "elect."

Since the above was written neighbor Abbot suggests that my "convergent nest-box" needs more ventilation. In my efforts to give the biddies *privacy* I forgot *fresh air*. On cloudy days, or in cool weather, the nests are all right; but during sunny days I am leaving the lids propped up a couple of inches.

ROOFLESS POULTRY-HOUSES IN FLORIDA, ETC.

Mr. Root:—In the Poultry Department of GLEANINGS for Jan. 1, F. M. Baldwin strongly advocates roofless coops for poultry in Florida. I would advise new-comers intending to keep chickens not to follow such advice too blindly. Use common sense. Mr. B. claims that poultry are not bothered with vermin in roofless coops. May be not, but there are other ways of getting rid of vermin than drenching the fowls with rain water two or three times a week. When we had dirt floors in our coops, chiggers were a terrible pest. We put in board floors, and have not seen a chigger in years. A roofless coop would be a standing invitation to all the varmints in the neighborhood to come and help themselves. All the coons, possums, foxes, and wildcats in that vicinity would camp around that coop till the last hen was gone. Wire poultry fencing does not always keep them out.

F. H. CHESEBRO.

Boca Raton, Fla., Jan. 21.

My good friend, either you have not been long with us or you have read GLEANINGS carelessly. The term "roofless" does not mean there is nothing overhead to keep out "varmints." On the contrary, I think most of the roosting-places are covered with poultry-netting. The first two years we were in our present Florida home our poultry roosted in the trees, and had no houses at all; and my yield of eggs was as good as with houses. The reason why I changed was the difficulty of getting the fowls, when wanted, and some trouble on moonlight nights from owls. We have had no insects of any kind in our roosting-places since we commenced sweeping up the drippings every morning.

CONVERGENT POULTRY-RUNS ACROSS THE WATER, AND SOME OTHER THINGS.

Dear Sir:—I wrote you, Sept. 9, about the convergent poultry-runs, and you published it on Nov. 15, since when I have not seen any thing further on the matter; so I thought you would like to hear the opinion held over on this side.

The chief drawback seems to be in the great length of the run when compared with the width, as the fowls are not inclined to keep the grass down at any distance from the house; and to overcome this Mr. Wright gives a plan of eight houses, sheds, and runs.

Personally I prefer the colony system, which Mr. Wright credits to Mr. Stoddard.

I am afraid you missed the point in the leaflet taken from the Mark Lane *Express* about lime. Although it was printed in 1910 it was an article on farming in the 16th century in England, and went to show that the old timers knew that lime was good for clovers. Lime and salt are the two oldest artificial manures in existence, and are largely used in this country as well as seaweed.

I was much pleased to see in the Jan. 15th issue J. E. Crane's remarks about the good old blacks. All the other "Gleaners" seem to think them of little value; but I can assure you that I have had Italians direct from Italy and that they can't gather honey as do the blacks, and they are not half as good at wintering.

W. A. TEARE.

Ballashellan, Ballabeg, Isle of Man.

Gleanings in Bee Culture

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Editorial

THE COMB-HONEY CANARD, AGAIN.

A SYNDICATED article that is appearing in a large portion of the daily press of the country, written by Miss Ida M. Tarbell, on the subject of glucose, and telling how it has been used as an adulterant, makes this statement:

"They even manufacture honeycomb and fill it with corn syrup."

We wish every one of our subscribers would send in their immediate protest to all papers publishing this, asking such papers to send such protest to Miss Tarbell. We believe she is a candid writer, and desires to tell the truth; but in this case she has made a big blunder. She has implied, also, that the strained honey on the market to-day is nothing but corn syrup, in spite of the fact that the national government, as well as most of our States, has stopped the sale of glucose as honey. Make it plain that there is no such thing as manufactured comb honey, and little or no adulterated liquid honey. Of course we are voicing our own protest direct.

ANOTHER TREATISE ON BEE CULTURE, FROM THE STATE ENTOMOLOGIST OF INDIANA.

THERE lies on our desk a copy of the Fifth Annual Report of the State Entomologist of Indiana. That State has been fortunate in having two entomologists, Mr. Benjamin W. Douglas and now Mr. C. H. Baldwin, both of whom have prepared comprehensive reports on the injurious and useful insects of their State. At the close of the last report appears a brief treatise on bees by D. W. Erbaugh and B. F. Kindig, State foul-brood inspectors. There also appears from the same office a circular of information for beekeepers on the brood diseases of bees, by the Hon. Mason J. Niblack. Mr. N. is an ardent beekeeper—one who has done, perhaps, more than any other man to advance the cause of apiculture in his State. The excellent foul-brood law that has been in force for several years was largely due to his untiring efforts and influence in both Houses of the General Assembly. Indiana beekeepers will no doubt

be able to obtain a copy of either by applying to the State Entomologist, C. H. Baldwin, Indianapolis.

OUR COVER PICTURE.

THE picture on our cover for this issue is one sent us by Mrs. S. E. Howard, of Wakefield, Mass., whose article adorned the pages of our Women's Number, the March 1st issue. Mrs. Howard is an expert, who, having made a success with beekeeping, has been furnishing a number of the popular magazines with illustrated articles showing how and why she succeeds. These articles are refreshing in that they are written by one who is familiar with nearly every phase of beekeeping. A very large proportion of the literature in the popular press in regard to bees is unorthodox in some respects. By this we mean that it is likely to contain some reference or some statement which causes an experienced beekeeper to smile. Mrs. Howard's articles do not contain extravagant claims of enormous profits, nor are they such as to cause any inexperienced person not fitted for beekeeping to plunge wildly into the business without giving a thought to any thing aside from the spending of a lot of time and money.

The view shows the hiving of a swarm. The cluster of bees has just been shaken on to the sheet before the entrance of the new hive, and the bees have begun marching in. This is a sight that never fails to excite admiration or wonder on the part of the onlooker, as the bees when they once start go trooping in, for all the world like a flock of sheep.

THE WESTERN HONEYBEE.

VOL. I. No. 1 of the new bee-journal has come to hand. It announces on the front page that it "is not a competitor nor a money-maker," but is designed to "fill a long-felt want." It is published by the California State Beekeepers' Association, from news furnished by the beemen. At present it is edited by G. L. Emerson, a beekeeper owning and taking care of from

1200 to 1600 colonies. There is a distinctly Western and a professional flavor in the new publication, and the first issue gives evidence that it will indeed fill a "long-felt want." The articles are by a number of prominent beekeepers—men well known through the bee-journals; and, besides, there are contributors who count their colonies by the thousand.

We are glad that its promoters feel that it is not a "competitor." This is a broad, broad world, and a big, big country. California is a great deal larger than some countries, and the second largest State in the Union. We see no reason why the beekeepers of that State should not be able to maintain a journal that will be a credit to them as well as a help. It will build up the industry, and so far from being a competitor it will be an aid to all bee journals.

It will be of immense worth in securing a foul-brood law that will mean something in California. There is much more it can and will do for not only the Association but for the general advancement of bee-keeping within the State and out of it. GLEANINGS is glad to welcome it.

THE BEHAVIOR OF THE HONEYBEE IN POLLEN COLLECTING.

IN our issue for March 1, page 139, we gave a brief review of a bulletin from the Bureau of Entomology, No. 161, by Dr. D. B. Casteel, on the subject of the manipulation of the wax scales of the honeybee. This time we have the pleasure of referring to another bulletin by the same author, entitled "The Behavior of the Honeybee in Pollen Collecting." This, like the other, is extremely interesting, because it opens up a field hitherto unexplored by any one except F. L. Sladen, now Assistant Entomologist at Ottawa, Canada. Much has been written on the value of the honeybee in pollinating fruit-blossoms, clovers, and buckwheat; but the intricate process by which the bee prepares this pollen and deposits it in its pollen-basket, if we are correct, has not been accurately described until Sladen and Casteel gave it to the public.

The matter of *how* the bee takes its pollen from the blossom and stores it in its pollen-baskets, from a scientific point of view, at least is exceedingly interesting; and it has its practical side because it helps to prove that bees perform an almost indispensable service in pollinating blossoms. If any one has ever doubted this proposition he could doubt no longer after seeing how elaborate and perfect are the appliances, the working tools, so to speak, in pos-

session of our common honeybees as well as bumblebees, for gathering and storing pollen. That is to say, if the bee is perfectly equipped for doing this work it certainly must do it.

Very few people have had the time and patience to follow the intricate process of the bees in pollen-gathering from start to finish. In our younger days we tried to discover just how the bees did it; but the performance was so rapid that nothing short of an instantaneous photograph could have caught it. In this connection it should be stated that Dr. Casteel had, of course, all the modern appliances that the government could furnish to aid him in this investigation, and he used them. He called in the services of an expert chemist from the Bureau of Chemistry to determine the nature of the liquid that holds the pollen together; he consulted all the works that bore in the least on the subject; but apparently Mr. Sladen was the only man who came anywhere near telling exactly how pollen is put into the pollen-baskets.

The bee's working tools consist of spines and hairs on its legs; of a long hairy tongue, of mandibles, and fuzz, or hair, on the body, and of pollen-baskets which, so far from being a basket—well, it does not look like any thing except a bee's hind leg. The average person, if he will examine it carefully with a microscope, will conclude that the pollen-basket is the most unlikely place in which to store a lump of bee-bread; but it stores it in great big chunks just the same.

The manner in which the bee gathers pollen varies according to the flowers on which it is working. Sometimes the dust is collected on the hairs of the body as well as on all the legs, antennæ, and head. At other times, only the fore legs, where the flowers are very small, in connection with the tongue, seem to be concerned in the process. On the fore legs is a very interesting device called the antennæ-cleaner, which is used for removing pollen from the antennæ. On the middle legs there is a peculiar kind of spur that is used for kicking pollen out of the baskets on arrival at the combs. On the hind legs are pollen-combs, pollen-baskets, a sort of pincers or squeezers, consisting of a pecten, and auricle. These devices all come into play at the proper instant, as we shall see. In some cases the bees fairly wallow in the pollen dust of the large flowers. On taking wing they proceed to clean themselves through the agency of the special tools provided by the legs, consisting of hairs, pollen-combs, antennæ, claws, all of which,

while the bee is flying, may be engaged in the process of directly and indirectly transferring the pollen from some part of the bee's anatomy to the pollen-basket. "Busy as a Bee," for the bee is busy not only while in the flower, but while it is on the wing. It can not afford to waste valuable time merely in flying, so it keeps its legs busy in making pollen gathered on its body and legs) into a bee-bread, or, more exactly, a pollen paste consisting of honey and pollen grains, making little patties of dough.

The process of following the transference of pollen from the mouth parts to the middle legs, and even to the pollen combs of the hind legs, is not so difficult. Most of the authors who have attempted to describe it have been fairly accurate; but authorities have differed widely as to how the pollen was transferred from the pollen combs on the hind legs to the pollen-baskets; and no one seems to have discovered the correct method until Sladen and Casteel, each independently of the other, dug it out.

Those who have studied the anatomy of the bee will remember that, on the hind pair of legs, there seems to be between the joints a big pair of pincers or jaws. These pincers or jaws are opened when the legs are flexed, and closed when they are straightened out. Some have supposed that the function of these was for the purpose of masticating or working wax; others, that they were used for hanging hold of each other while hanging in the swarm. There have been all kinds of guesses, but they have been wild. Sladen and Casteel have proved beyond a question that they are used for the purpose of pressing the mass of loose pollen and honey, and at the same time forcing it up under pressure into the pollen-basket on the outside of the leg. The pollen combs of the hind legs receive the pollen from the middle legs, and from the under side of the body of the bee. The pecten spurs or the upper part of the pincers catch or gather the pollen from the pollen combs on the opposite hind leg. The jaws close, squeezing the mass so that it is forced under pressure to the opposite side of the leg up into the pollen-basket, just about as you would squeeze putty out from between the ends of the fingers. These little masses of pollen, or mouthfuls, so to speak, are gradually forced upward, pushing the general mass higher up in the basket. The process is somewhat similar to the method of putting fuel in one of our house furnaces. The coal is pushed up from the bottom under the fire-pot, shovelful by shovelful, so to speak, until the fire-pot is filled

full. In the same way the bee fills its pollen-basket from beneath; and this filling continues until the lump of pollen is pressed out in all directions, crowding against the hairs or spines of the pollen-basket, and sometimes away past them; and as the mass is wet with honey it sticks to whatever it comes in contact. The old popular belief was that the middle legs, in some way unexplained, put the pollen in the pollen-basket from the outside. While these middle legs do reach back over the pollen mass in the baskets, the purpose of the movement is evidently to determine whether the lump is holding its position.

The whole process as described by Sladen and Casteel is exceedingly interesting; and it is of more value because each worked out the problem without the knowledge of what the other was doing. It is a marvel that either should have discovered the process; but when it is once explained it seems so clear that there is no room for doubt.

There has been some speculation as to what is used by the bees in moistening the pollen. Some have thought that it was saliva; but the majority have held that it was honey. Dr. Casteel has proved that honey is the agent, for chemical analysis shows that, beyond a doubt. Honey that is obtained from the mouth parts is transferred to the fore legs, and sometimes to the middle legs, and by the latter to the hind legs, or pollen-combs, that catch and receive the dry pollen. This is subsequently worked over and transferred to the pair of pincers already mentioned, before its entrance into the pollen-baskets as just explained.

This interesting bulletin can be secured from the Superintendent of Documents, Government Printing-office, calling for circular 121, and inclosing five cents. Do not send stamps, as the Government does not accept them. It would be well to get in your order early, as the edition of Dr. Casteel's former bulletin, No. 161, on "The Manipulation of the Wax Scales of the Honeybee," was entirely exhausted in a short time. We are pleased to note this, because we want the authorities at Washington to know that there is a big demand for any thing on the subject of bees, and the more of this kind of stuff they can give us, the better.

For convenience in sending for these bulletins the Department will send twenty coupons for a dollar, each of which is good for five cents. Buyers of public documents will find the use of these coupons the most convenient and the safest way of remitting the amount of their purchases.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

DESTROYING the capped cells to prevent swarming is advocated, p. 212. But would not that require very close watching? for are we not told that a colony swarms when the first cell is capped?

MR. EDITOR, you say, p. 246, that parcel-post packages of honey can't go *outside* of the mail-sacks. May be they can't, but they *do*. At least the case of honey I sent to Chicago went that way. Matter of "locality," eh?

TIME was, and not a hundred years ago, when a beekeeper's success was measured by the number of swarms that issued. Now there is a niche in the hall of fame awaiting the man who will give us a profitable way to prevent swarming in all cases.

How nice it would be if you could just divide a colony into two, three, or more parts without having most of the bees go back to the old stand! Well, you can do that very thing if you take a colony from the home apiary to an out-apiary. Then you can bring another colony from the out-apiary and divide it up in the home apiary. Of course, if you have no out-apiary you can shut up the bees for about three days, or you can close the entrance with green leaves or grass and let the bees dig their way out. [You are right.—ED.]

J. L. BYER, your head's level in that talk about syrup vs. honey, p. 253; and I venture to say that in five years you'll go still further and say that, even for wintering, syrup does not equal A1 honey. [What do you mean here, doctor? Do you mean that an A1 honey is superior, irrespective of quantity, to sugar syrup? Perhaps you are right, but we would suppose that you will have not only Mr. Byer but the whole fraternity against you. However, we all agree with Mr. Byer that a pound of sugar syrup in the feeder will not last as long as a pound of honey sealed in combs.—ED.]

FOR half a century there is no one thing in beekeeping I have fought more bitterly and persistently than the swarming nuisance. I don't believe any plan is known that will *entirely* prevent all swarming if colonies are kept strong. But you can come so near to it that it will hardly pay to watch for the few swarms that will run away. You can work for extracted honey, and give abundance—not plenty, but *abundance*—of room for the queen, and also for the surplus, giving much ventilation at each story. Or, especially if working for sections, you can exchange the old queen for a young

one at the beginning of the swarming season.

G. W. DEMAREE, a Kentucky beekeeper, some years ago gave a plan for prevention of swarming that is simple, and has proved successful in the hands of many who work for extracted honey. When swarming-time comes, put the queen in the lower story with one frame containing a little brood, and fill up the hive with combs or foundation. Over this put an excluder, and over the excluder a second story with the rest of the brood. Ten days later kill cells in upper story. These upper combs will now become extracting-combs. [The secret of this lies in giving the queen egg-laying room. The principle is correct.—ED.]

WHEN running for extracted honey it helps against swarming to have the stories "stuttered;" the second story shoved forward to make ventilation at the back, the third story shoved backward to make ventilation at front, and so on alternately. Even for comb honey I like ventilation at back between hive and first super. [This plan is all right when working with ordinary Italians or common hybrids—that is, a cross between Italians and black bees. We tried it out very thoroughly last summer with an apiary of Carniolans. While it checked their swarming it did not stop it. In fact, we do not believe there is any device or method known that will stop Carniolans from swarming if they once get started. This one Carniolan apiary gave us more trouble from swarming than all the rest of our apiaries together.—ED.]

I ARISE, reluctantly, to say to beginners who think of increasing by the Alexander plan as given in A B C and X Y Z that I don't believe there's one locality in a hundred where the plan will pan out as there represented. In my locality it would make the increase all right, but it would make a bad dent in my honey crop instead of nearly doubling it. If your bees have a reliable buckwheat harvest of thousands of acres, and you want at least part of your crop extracted, then go ahead. [You are probably correct for your locality; but you will remember that Mr. Alexander places strong emphasis on stimulative feeding. And you will remember that his main honey crop did not come on till about the first of August or later; so, therefore, what might work with him might be a failure with you, where your honey-flow comes on about the first or middle of June, and closes about July 1.—ED.]

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

I read this headline in the issue for April 1: "Painting queens so that they may be quickly found." A little more training of the eye will help to a great extent. I doubt whether the painting idea makes very much headway.

* * *

Mr. R. M. Spencer says, April 1, p. 209, "We use a method of preventing robbing during this early spring work by going over the hives so fast that robbers can not get a chance." I guess that is "going some," all right.

* * *

California showed up well in the April 1st issue. Besides the cover picture, we were represented by several good articles. Those honey-tanks shown on the cover are about as large as are ever used, and not very often do we see more than one at an apiary, even in this land of floods and drouths in the honey-flows.

* * *

Did you ever stop to consider the amount of excitement a swarm of bees will cause? I once saw an entire family, with most of the tin portion of the kitchen utensils going across the fields and meadows in a merry chase after a swarm, but they were not successful in stopping it. A hive once sat in the back yard of a neighbor year after year, and the bees were hardly noticed until they swarmed out; then great excitement was started at once, and all hands were called to hive them quick.

* * *

A CORRECTION.

I am in receipt of a letter from Mr. F. C. Pellett, State Bee Inspector of Iowa, in which he calls my attention to the fact that I have misstated the report of the Iowa State Beekeepers' Association, on which I made comment in the April 1st issue. Mr. Pellett says, "The joke is on you; put on your glasses, and read the report of the Iowa convention again." Well, I read the report, and I humbly beg the pardon of the Iowa beekeepers; but in justice to myself I think Mr. Pellett should have recommended an optician, inasmuch as I have not as yet begun the use of glasses. It is just possible I may be in need of them. Any way, I must admit that I did not observe as closely as I should have done the clause relating to being accompanied by a certificate of health signed by some duly authorized Government or State inspector.

PROSPECTS FOR HONEY.

We are nearing the end of the second week of April with little if any better prospects for a honey crop than at the same date last season. So far we have had a very light season's rainfall, and at this date it seems probable that our rains are over for the season. We may expect some showers during the next four weeks; but any great amount of rain is only possible. The button sage in this locality, no matter how much it may rain, is practically out of consideration for the season. It is badly frozen, as I have before stated. Much of it will not put out a bloom shoot, and some not even a green leaf. The orange-trees are just beginning to bloom, with bees on an average in better condition than last season, so we may reasonably expect some honey from that source; but from the wild flora there is little in prospect. It seems probable that the season will be finished with a total of less than last year's crop, and the price ranging around 8 cts. Good rains would, no doubt, be of some aid, but it seems out of reason to expect any great amount of honey after the past six weeks of practically dry weather.

* * *

FIRST ISSUE OF THE WESTERN HONEYBEE.

The first issue of *The Western Honeybee* is out. I believe it is of sufficient merit to recommend itself to the western beekeeper. Like all work undertaken by the association, it must be supported first and most loyally by association members, who, with their best efforts, can help gain the support of the western beekeepers as well as many in the East, for there are many in the East who will be subscribers for the sake of knowledge. The more bright journals we have, the greater will be our opportunity to profit by the ideas we get one from the other. It is my wish that *The Western Honeybee* may take its place in the front rank of bee journals of the country, and I shall lend an effort in making it a success, though I expect to continue my work in these columns as long as I can feel that I am aiding the beekeepers of my State or elsewhere, or until the editors tell me that my services can be dispensed with. I have been editing this department for nearly two years; and while I do not feel that I should grab in with both hands and take more than my share of credit, I do have a feeling that I have done something to interest the California beekeeper and keep alive an interest in our State affairs.

Beekkeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

Mr. Chadwick says, p. 47, Jan. 15, that Colorado claims 27,000 colonies of bees. I wonder where he got that information. The 1910 census gives Colorado 70,000, and that is very probably below the figure, as bees in towns were not counted. I do not care to guess, but I am of the opinion that, if every hive containing bees were counted, the number would be over 100,000. Mesa County has over 14,000 colonies, according to Mr. Harkleroad, the inspector; and of this number over 11,000 were inspected during 1912.

California is, without doubt, a much heavier honey-producer than Colorado. We are willing to grant that; but we have some of the best beekeepers to be found anywhere, and the homes of our beemen are a credit to the State. I have a collection of photos that attest it, and some of these days I am going to show them. The homes of a nation are its stronghold. The past fall, Mrs. Foster took nearly a thousand-mile trip with me, and she visited in the homes of beekeepers for about a month. She formerly harbored the idea that beemen were mostly eccentric, a little off in the upper story, so to speak. When she reached home she had changed her mind, and expressed herself to the effect that beemen know how to share the conveniences of modern life with their wives, and how to enjoy life. They struck her as being a live, alert class with a business requiring training and mental alertness. So there you have the opinion of a college girl, newspaper woman, etc., who happens now to be Mrs. Foster.

* * *

ALFALFA NOT BEING CUT AS EARLY AS FORMERLY.

While on the Colorado Agricultural College demonstration train I had several very enjoyable visits with Mr. P. K. Blinn, alfalfa specialist for the Colorado Experiment Station at Rocky Ford. There is no man in the United States who knows more about alfalfa than Mr. Blinn. He has experimental plots of many varieties of alfalfa, testing seed production. The nectar production in relation to seed production is one of interest to him, and some tests are contemplated to find out, if possible, whether the heavy seeding alfalfa is also heavy in nectar production. The Grimm alfalfa is in the lead at present, as regards tonnage and hardiness. It is much more profuse in its blooming than any other varieties—all colors of bloom from white, pink, blue, and purple shades. If, as is likely, it is as heavy

a honey-producer as it is a blooming crop it will be a winner for the beeman. And here is another point—it begins blooming before its gets its growth. The farmers will not cut it until after it has bloomed for some time. The seed is from fifty cents to a dollar a pound as yet; but the price will come down when it is produced in greater quantities. Mr. Blinn also brings this good news to the beemen—that there is a change of opinion regarding the cutting of alfalfa before it blooms. Alfalfa is not being cut as early as it was five years ago.

* * *

SEASON PROSPECTS.

Early in March, breeding was going on freely in normal colonies, only the weakest ones being without brood. But March went out like a lion, and considerable brood was chilled. Many colonies will need feeding in northern Colorado before the honey-flow begins. Better lay in a supply of sugar. It is cheaper now, March 26, than it has been for a long time—\$5.00 per hundred, and less for beet sugar.

A snowfall of 19½ inches fell March 25th, nearly half the whole winter's fall. There is an abundance of snow in the mountains, and the bees are in fine order. The only thing we fear is the late frost that blights the alfalfa and destroys the nectar secretion of the first growth, and lessens the secretion of the second and third bloom.

The beekeeper in the exclusive alfalfa districts has troubles altogether different from those of the man in the fruit areas. The alfalfa-district man is annoyed by spring winds that retard early breeding. There is also a very marked lack of early pollen. These conditions obtain in the Arkansas Valley in Eastern Colorado, and the Platte Valley in Northern Colorado. Some beemen move their bees near the river in the valley for the winter and spring, moving back to the alfalfa fields about the time for the bloom on the alfalfa to open.

In the fruit districts bees build up with remarkable rapidity, and swarm and swarm just as they do where they wish for a non-swarming strain of bees. It is easy to keep up one's numbers in the fruit district if you are not wiped out by spraying. Which location will you take? The beemen feel that they are between the devil and the deep sea. Some say that they believe they will move back east and live with wife's folks—take up cellar or clamp wintering, and put up with cold winters, and floods in the spring.

Conversations with Doolittle

At Borodino, New York.

ARE DRONES A NECESSITY IN NATURAL SWARMING?

I am told that drones are necessary when the bees make their plans for natural swarming, for no swarm will ever issue unless there are mature drones or drones in the brood, on the principle that the parent colony would become extinct from the leaving of the mother-queen with no provision made for the mating of the young queens later. This would be especially true with all isolated colonies; and it is calculated that the bees of each colony consider theirs in such a light, no matter how many other colonies any apiarist may mass together. Now, if this is a fact, would it not be an easy matter to do away entirely with natural swarming by excluding all drone comb from all the colonies in any apiary?

The exclusion of drones from colonies for the prevention of swarming is not a new idea. It does seem reasonable at first that no colony would swarm unless there were a reasonable prospect for the perpetuation of the old colony from the young queens, always left behind in the brood form, becoming fertile later. But so far as I know it has never been announced that successful non-swarming has ever been obtained by excluding brood comb. Several have announced, during the past quarter of a century, that drones, being a necessity to the permanence of the colony, a logical deduction would be that their entire absence would delay the preparations for swarming that are usual to all parent colonies. It has been assumed that the rearing of drones is the first preparation which leads to the building of queen-cells, which, when sealed, constitute the completed preparations.

While on this subject it might not be amiss to notice some other vital principles which induce swarming, and which will afford us a more intelligent understanding of it. As long ago as 1852 Mr. Moses Quinby named three causes which induce swarming, and to-day they are recognized as the prime factors. As I look back over the years which have passed since then I can not refrain from referring to the wonderful accuracy of most of Mr. Quinby's investigations. Even the limelight of this twentieth century has cast a shadow on very little if any of the investigations which he gave to the world, and the larger part of such were carried on when a box hive was the known palace of a colony of bees. His three causes or factors are these: "A crowded hive, a large brood, and a good flow of nectar." These are usually sufficient to induce swarming.

Another factor bearing on these is that of temperature, which will hasten or retard the preparation just in proportion to the

heat or cold. What is known as the swarming fever or swarming impulse is a strong factor when the other conditions are combined. These conditions being absent, no amount of drones would cause swarming; and with their presence I have known colonies to swarm without a single drone or even any prospect of any.

This no-drone theory is not new, as I hinted at in the start. At the time it was agitated, fifteen or twenty years ago, in order to test this matter as well as another still more strongly advocated as a fact, that no colony would swarm with any queen of the current season's rearing, I made several colonies as follows: A nucleus was formed by taking the queen away from a weak colony of bees, and confining the bees of this weak colony on two frames of brood and two of honey, the brood being between the two of honey. This nucleus was given a ripe queen-cell. This gave a laying queen in from ten to twelve days, at which time there would be bees enough to care for a hive full of combs, as the larger part of the brood would have emerged if combs of nearly all sealed brood had been given at the time the old queen was taken away. When the young queen had practically filled with eggs the combs from which the brood had emerged, six combs of all worker cells, filled as nearly as was possible with sealed brood, were given to such a nucleus. Three days later a super of sections filled with thin foundation was given, when the no-drone and current-year-queen talk said such made colonies would not swarm that year. In about ten days these hives became filled to overflowing with bees from the sealed brood given, and the bees were making a start in the sections, as there was a fairly good yield of nectar from the fields.

Some days later, when I was becoming enthused with this way of making colonies, which would be non-swarmers for at least one season, out came a swarm of monstrous size, the queen coming out with the last half of the bees in regular prime-swarm fashion. A careful looking-over of the combs which the hive contained gave no evidence of drones in any form whatever; but there were queen-cells with eggs and young larvæ in them. This was a damper on my enthusiasm, and the whole theory was finally spoiled by every one of the colonies I had made in this way swarming that year, with a single exception.

Those who still thought that there was

Continued on page 288.

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Wherever bees here in Ontario had enough good stores last fall, they wintered in fine condition. Many beekeepers report heavy consumption of stores, and attribute it to a mild January. Clover is looking well at this date (April 4); and as there is an abundance of it this season, naturally we are hoping for a good crop of honey.

* * *

Talk about pluck, I think that picture on page 155, March 1, where a transferring operation is in progress, shows that virtue personified. How many women would want to be working like that with those thousands of bees crawling all over the ground, and over herself, as seems to be the case. Transferring will always be necessary, I suppose, to a certain extent; but at best it is a mussy job when done by the old-time methods. The times are rare when one can not transfer by simply putting the new hive on top of the box or other receptacle, allowing the queen to go above and occupy the good combs or foundation. As soon as she is above, slip a queen-excluder between the two bodies, and then in 21 days shake off the bees of the lower hive, doing as you wish with the combs, now empty of brood.

* * *

The spraying question is a live issue in Ontario again, especially in localities where fruit is grown extensively. Last week I was in the counties of Northumberland and Durham on a short Institute trip, and at different places I heard of owners of spraying outfits who said that they were going to spray right along, and, if necessary, pay any fines imposed. They said that the outfit is worth at least \$15.00 a day to them; and as the fine is very small, they can afford to pay it if necessary and keep right on at work. To make matters worse, some good fruit-men are not as sure as formerly that the spraying in full bloom injures the blossoms; and with a big acreage to cover they say that, if it were not for the bees, they would spray right in full bloom. It is a difficult question to solve; but there is no question that the best-informed men in the fruit industry are opposed to this spraying in full bloom, even if it were not detrimental to the blossoms, as they realize that the bees are necessary in order to insure best results in the way of fertilization. Something will have to be done in the near future, for this spring the chances are that there will be considerable friction in some localities; and if the law we have is to be

enforced, certainly amendments must be made that will make the fine more than nominal.

* * *

QUEENS MATE QUITE CLOSE TO THEIR OWN HIVES.

Mr. John McKinnon, writing in the *Canadian Bee Journal*, says that his Italian bees did some robbing from hives four miles distant, this last season, and also that some black queens six miles away were mated to Italian drones from his apiary. While I would not contradict these statements, yet it would need some pretty positive proofs to convince me that he is correct. For years, much buckwheat was grown within four miles of our home apiary; and while bees in the buckwheat section stored more than enough for winter each season, not once was a drop of buckwheat honey noticed in our yard. In said yard there were Italians, Carniolans, and blacks, so no "race" claims can enter into the matter as an explanation. As to distant mating, I can not speak so positively; yet all my observations along that line certainly go to show that the great majority of queens are mated quite close to the hives from which they issue. Especially is this so in so far as black bees are concerned; and usually with an equal number of black and Italian drones flying, the black chaps will come out ahead in the race, as any one who has bred Italian queens in a mixed apiary will testify to from sad experience.

Conversations with Doolittle—continued from p. 287.

something in the no-drone theory, still clung to the belief that swarming can be prevented that way, and so I tried many plans looking toward the prevention of a single drone being reared in any hive in their apiaries, they considering the prevention of the rearing of drones the greatest obstacle in the way, for it is the natural instinct of a strong colony of bees to rear a few drones when the colony becomes prosperous enough in early spring. It was found out that frames of all worker comb, or those of foundation having that size of cell, were not proof against drones, as some anxious colonies would get in a few cells in the corners of the frames, between the frames and some part of the hive; or, if thwarted in all these ways, they would even cut down a little patch of worker comb and build drone comb; or the queen would lay drone eggs in worker cells.

General Correspondence

THE SWARMING PROBLEM IN THE NORTH

Making Increase; Making up Winter Losses

BY E. D. TOWNSEND

The prevention of swarming when working bees for either comb or extracted honey is a matter which should be given attention earlier in the season than many suppose. It is a case where the old adage, "An ounce of prevention is worth a pound of cure," applies forcibly; for if one can get his bees strong, and still keep them free from the swarming fever until the opening of the clover or raspberry flow in June, with rational handling during the honey-flow, but little swarming should result.

A MILD SYMPTOM OF THE SWARMING FEVER.

One indication of the swarming fever is the early rearing of drones in spring. This symptom is not of a very severe type, as it will be noted that swarms with but a moderate number of bees rear drones the same as the more powerful colonies during the spring months. At this time the swarming fever is so mild that subsequent events or conditions will determine whether the colony will swarm or not during the season.

A CRITICAL PERIOD IN SWARM PREVENTION.

In the North the period of three or four weeks previous to the opening of the clover or raspberry flow of honey is a critical period—the time of our main surplus-honey flow. We have practiced for years the protecting of our bees either out of doors, in packed or chaff hives, or papering those wintered in the cellar, until after the danger of freezing nights was over, which in this location is from May 20 to 25.

We have a system of uniting our very weak colonies with our very best ones, setting one above the other, without excluder. To digress still further I will say that, at this uniting, stores are equalized—i. e., a weak colony containing considerable honey is carried and set either under or over (as my judgment suggests) a colony containing a normal quantity of bees, but short of stores, or *vice versa*. There are still some colonies not very populous that are worth saving. It will pay to protect these in some way during the cold period of spring.

How to carry the populous colonies of bees through the period of three or four weeks previous to the opening of the main honey-flow without their acquiring the swarming fever is the proposition in swarm control during the season. Swarming-fever prevention at this period is secured by giv-

ing the more populous colonies *an abundance of comb room* so that they will never feel the least bit cramped for room. This is the key to swarm prevention previous to the opening of the honey-flow. More and more each year we are practicing giving a set of empty combs to each good colony some little time previous to the opening of our main flow of honey in June.

We start out by giving sets of brood-combs where swarms have died out, or some where weak swarms were united the previous fall. As we never extract from these brood-combs, they usually contain considerable honey and bee-bread, which is valuable at this time.

EACH COLONY CARED FOR ACCORDING TO ITS INDIVIDUAL NEEDS.

If a colony is found in May with a good stock of bees, but which for some reason or other is short of stores to carry the bees over to the opening of the main honey-flow, we place, in this extra set of combs we are giving them, honey to supply their wants. Those stories of brood-combs which we give early are placed under the colony, while those given later in the season are placed above a queen-excluder (on top), for they are our regular extracting-combs.

While we strive to have our covers fit reasonably tight, thus preventing any considerable direct draft through the colony, the summer entrance should be used. In most cases this large entrance, coupled with a full ten-frame set of combs underneath, will prevent the swarming fever. A colony of bees free from the swarming fever is worth two colonies that are "sulking" at the opening of the surplus flow in June on account of the swarming fever.

The handling of the surplus receptacle during the honey-flow is worked on the plan of giving plenty of room during the first three-fifths of the season, or allowing the remaining two-fifths of the honey-flow for finishing.

HOW WE MAKE UP OUR WINTER LOSSES; ALSO HOW WE MAKE OUR INCREASE OF COLONIES.

After managing our bees to the best of our ability, without going to the trouble of shifting combs about from colony to colony, some few colonies will swarm unless we utilize them for increase. As our bees are mostly in outyards, where a part of them are left without a keeper each day during the season, on account of there being more yards than help, if the bees were allowed to cast many swarms a considerable loss would occur.

As I have already mentioned, the extra strong colonies early in the season were given an extra story under, containing a weak colony. Others were given sets of brood-combs containing more or less honey according to their needs, while still others were given sets of extracting-combs above an excluder. In case of the colonies containing two sets of brood-combs, or any divisions, for that matter, where sets of combs are available, we proceed as follows in increasing our number of colonies: The upper story is usually the one containing the main portion of the brood and honey; but it often happens that the queen has begun to utilize the lower story by the opening of the clover flow of honey. In case young brood is found in the lower story, all we have to do is to see that the queen is in the lower portion, put on an excluder, then a set of extracting combs, and, on top of all, the set of old brood and honey. In eight days the brood will be all capped over in the upper (queenless) apartment, and in two more days ripe queen-cells will be found. About one colony in ten will not build cells in their queenless brood above; but ample cells and to spare will be found in the other nine colonies to make up any deficiency in the tenth colony.

At the time of making the divisions, if cells are found, as in preparation for swarming, no notice is made of them unless there will likely be a virgin hatched before our next trip to the yard to finish up the increase ten days later. In this case a queen-excluder is placed under the body containing the cells, so as to be sure that the young queen will be in the very set wanted, or, in other words, not be allowed to roam over two sets of combs, making it necessary to hunt her up on the tenth day. On the tenth day the set of brood, now all sealed, containing either cells or a virgin, as the case may be, is given a bottom-board and cover, and is then placed upon a new stand and allowed to build up for winter.

If it is desired to make more increase than this one division, the newly made colonies can be divided in the middle, giving each half an equal portion of brood and honey, and seeing that each half gets a comb of brood containing one of the best queen-cells. Where the brood is divided in the middle, making two colonies out of the one set of brood, as set forth above, empty combs, or combs containing honey, should be used to make up the number necessary to fill out the hives, as foundation will not work so well in this place. With such small colonies, especially where there is no fall flow of honey, feeding will probably have

to be resorted to for winter stores. The above is our plan for making up winter loss where combs are available.

For increase, or any occasion where no combs are at hand, full sheets of wired foundation are used. The queen is found, and the card of brood, queen and all, is set in a hive body, and the remaining space filled in with frames containing foundation. The old hive is now set to one side, and the body containing the queen is set in its place on the old bottom-board. An excluder is now placed on top, then a set of extracting-combs, and the original hive placed on top of all for ten days, when it is given a permanent stand of its own, the same as when drawn combs were used.

This system of making up winter loss and increase is particularly adapted to out-yard work, as two visits is all that is necessary to do all of the work.

Northstar, Michigan.

THE SWARMING PROBLEM IN THE SOUTH

The Most Economical Way to Make Increase

BY J. J. WILDER

In this article I shall give some of my plans briefly; but allow me to say that no great crop of honey can be harvested here without close watch over the bees, and more or less manipulation of supers and frames. The extra amount required to control increase, however, is not so great.

No beekeeper should undertake these two great steps in our industry until he is familiar with the sources of honey within reach of his bees. He is then far better qualified to take up the work.

SWARM PREVENTION.

During a slow glimmering honey-flow, such as we have in the South during the summer or fall of the year, bees will not acquire the swarming fever if they are kept supplied with plenty of storing room. But during the spring months they seem to be naturally inclined to swarm, and will do so on the least provocation.

There is another fact noticeable about swarming. If, during the swarming season, there should happen to be one or more days of bad weather when the bees are confined to their hives, they seem to spend this time of leisure in preparing to swarm, and no doubt the greatest impulse for swarming starts under such conditions. In my location I may expect swarming to begin the first week in April. My first round in examining bees is made in February, and the second one during the first and second week

in March. On this round, all very strong colonies are elevated from their bottom-boards by means of two $\frac{7}{8}$ -inch strips cut 20 inches long, one placed under each side. This gives good ventilation from end to end, and allows the bees a good clustering-place about the bottom of the frames, which will protect the brood during cool nights, and allow plenty of ventilation during sultry nights, at which time they will most likely acquire the swarming impulse.

My brood-chamber consists of one eight-frame hive-body and a shallow extracting-super on top containing ready-built combs which are left on over winter, and which contain more or less honey; and if the queen is occupying this super of combs, another super is set on top, which gives the queen additional room. This super can be taken from some weaker colony, or there are usually some extra ones left on in the fall at each apiary for this purpose.

The third and fourth weeks in March another tour of inspection is made, and more strong colonies are treated in the same manner, and the weaker ones left for attention on the next round. The first ones thus treated are given a storing super; for by this time the eve of the honey-flow is at hand.

My third round is made during the first and second weeks in April, and at this time all colonies are treated like the first strong ones. By this time a little nectar is coming in, and the strongest ones are examined in order to see whether they have started queen-cells. This examination is made by tipping up the supers next to the hive-body enough to see well over the combs and also down through the combs below; and if any queen-cells are started they are torn out; but if not, the super is let back in position. If any work has been done in the storing super, another one is put on.

The fourth round is made the third week in April, and all colonies are examined for queen-cells as was done on the previous visit. By this time the honey-flow is in progress; and wherever a colony has started work in the storing supers, another super is added. Instead of placing it on top it is put under the other storing supers next to the brood-nest.

The fifth trip is made the fourth week in April, when all colonies are again looked over for queen-cells, as on previous visits, and storing room is added as may be necessary, allowing no honey to be finished next to the brood. By this time the bees are working in several supers, and there is little if any finished honey.

Another round is made a week later, or the first week in May, and all apiaries are worked as on the previous visit. The honey-flow is now at its best, and there is some finished honey which can be removed, and the packers started to work. About two weeks hence the honey-flow will decrease.

The second week in May another trip is made, and a few of the colonies in each apiary which have made the greatest effort to swarm are looked over; and if no sign of swarming appears we do not give the apiaries a general working, but add more storing room where it is needed. Then no more manipulation is necessary, for the bees have lost all desire to swarm, and will finish filling the supers.

INCREASE.

I make as much increase at the home apiaries as possible, for it is more convenient there, but a lot more of general increase is made at the out-apiaries. This increase is usually made at the time of our second or third round, and it requires but little extra time when every thing is in readiness.

In early spring, when we find a colony building queen-cells it is divided into two equal parts, and the queenless half is left on the old stand (if we happen to find the queen; and if not, both divisions are given combs containing queen-cells). Then the open space in the hive-bodies and supers is fitted in with ready-built combs, or frames containing full sheets of foundation. On our next rounds the divisions are examined, and the weaker ones are replenished with frames of sealed brood from colonies that can best spare it, and are given storing room as they need it. This cures such colonies of the swarming fever for the season; and as the divisions were made early, these colonies will store considerable surplus honey before the end of the spring honey-flow. Then more general increase is made near the close of the summer or fall honey-flow; but at this time there is no natural inclination to swarm, and nine or ten days after the divisions are made (which is done as in spring) we make a special round and see that all queenless divisions have at least one good queen-cell. At the close of the season, when we put the bees up for winter, if any colony is queenless we unite it with a weaker colony. Only the strongest colonies are divided, and those that are heaviest in stores, so that no feeding will be necessary. Thus our general increase is made from our very best stock. The increase at the home yards is made in like manner by dividing up the strongest colonies from time to time throughout the season; but here we give the queenless divi-

sions ripe queen-cells from our very best stocks; and when there is no honey-flow on we resort to outdoor feeding, and thus our off grades of honey are utilized. All queens are given all the room they can occupy by inserting empty combs in their nest; and as soon as one well occupies six or eight combs the colony is again equally divided, and so on throughout the season. Such increase may be distributed around to out-apiaries at any time during the year.

Cordele, Ga.

THE SWARMING PROBLEM IN THE EAST

Some of the Common Methods of Control Discussed; Natural Superscedure During Swarming

BY J. E. CRANE

Perhaps to no one subject connected with beekeeping has more thought been given than to the control of swarming. With the production of extracted honey this is comparatively easy. By raising one or two combs of brood into a super of empty combs above the brood-nest, filling their place with good empty brood-combs early in the season, and keeping the colony well supplied with room, there is usually little trouble with swarming.

It is quite otherwise with the production of comb honey, for the brood must all be kept below, and the brood-chamber crowded, in order to force the bees into the supers.

Destroying or decapitating a large amount of worker brood has been recommended as a sure preventive of swarming; but the practice is too expensive and disgusting to be thought of.

If one opens a large number of colonies week after week he may be surprised to see how many of these will have eggs in queen-cells, and sometimes young larvæ for three or four weeks, and yet never swarm, so evenly are the forces of the hive balanced in favor of swarming or opposed to it. We may take a hint from this, and use all those measures that tend to discourage swarming, such as giving an abundance of ventilation, shade, room for the queen to lay in the brood-chamber, super room for storing surplus, with bait sections, as well as the proper manipulation of the supers to stimulate to the utmost the storing instinct. I have also found that it is a decided help to destroy drone brood where there is much of it in the hive, or it will sometimes be found where there are many old combs. But after all is done that one can do to discourage

swarming, if the season is good, honey abundant, and the hives filled with brood, there will probably be many colonies that will prepare to swarm.

As fast as such colonies are found, prompt measures must be taken. If the colony is strong with a vigorous queen I would shake at once on clean worker combs. If these contain some honey it is just as well; and if half full of sealed brood I am inclined to think it is even better; but I do not often find the latter. When the bees enter the hive, or before, return to them the supers from the hive they have occupied. The absence of any unsealed brood will most likely cause them at once to give up any desire to swarm; and the half-filled supers will stimulate their storing instincts, and you will have them under control for the season unless the flow of honey is of long duration.

If you find a colony that is not strong making preparation to swarm, do not shake, as it will be of little value if you do, unless you take pains to nurse it and build it up; and even then it may prove to be an unprofitable venture.

If the queen from such a colony is old or not prolific, the best thing to do is to catch her and destroy her at once. It is not always easy to find a queen during the swarming season; but if you have a queen sieve it is not usually a long job. Then destroy all sealed queen-cells, and in eight days again destroy all sealed cells, and in another seven or eight days give a virgin queen. It is well to take from the brood-chamber any combs not occupied with brood, if possible, and to fill up with combs of mature brood. In this way work may be begun in the supers within a short time.

If I find a colony preparing to swarm with a queen of good age, and yet a colony which for some reason may not have a large number of bees, I often take the queen away, with perhaps twice as many bees as necessary to care for the brood, and place them in a new hive with an empty comb on one side and a comb of honey on the other side of this brood-comb. I set the hive aside, and throw a little grass or a few weeds over the entrance, and it will take care of itself. Most of the old bees will go back; but enough will remain to make a good beginning for a new colony.

The swarming season is the natural time for the superscedure of old queens, or such as have become exhausted by excessive prolificness. Queen-cells are started, and, when of proper age, the colony swarms; and the queen, unable to fly, drops to the ground and is lost. The colony returns to the hive,



"Playing with 'em." From Amos Harker, Cambridge, Iowa.

awaits the hatching of a young queen, and, when she is old enough, swarms again with her. A young queen also takes the place of the old one in the parent hive. Now, if we shake a colony preparing to swarm with an old or poor queen on empty combs, or even start a nucleus with such a queen, we shall be almost sure to meet with disappointment, for she will most likely fill a small patch of comb with eggs, and disappear; and queen-cells are started on these in order that the colony may secure a queen to replace the one which the bees recognize as no longer of value.

But what should be done with all the combs of brood which have been taken from those colonies which were shaken on empty combs? Well, that is a part of my story. Early in the season there are usually some colonies that are not strong enough to begin work in supers. Indeed, not more than five or six combs of brood will be found in them, and in some it may be even less. When one has plenty of surplus combs of brood he can take out the empty combs or combs of honey from these colonies and replace with combs of brood; and these backward colonies, instead of spending the whole season in building up and getting ready for business, will soon be able to enter the supers and yield surplus.

The combs removed from these weak colonies can be utilized by giving to colonies preparing to swarm which are fit subjects

to shake. Brood can also be given to any nuclei you may have made, thus building them up into good colonies.

But how about increasing your stock if you do all you can to prevent swarming? In almost every yard there are some colonies that are very forward—more so, even, than desirable in order to secure the best results in surplus. I know of no better way than to take from such early in the season a comb of hatching brood and bees—yes, more than bees enough to care for it, for some of them are likely to return to the parent hive. Then confine the bees for a day or two in a new hive, or throw weeds over the entrance. Give them at the same time a comb of honey and a brood-comb, and a day later give them a queen-cell nearly ready to hatch. If all goes well, in a few days there will be a good nucleus with a young laying queen; and if brood-combs are supplied as fast as their strength will admit you will soon have a colony capable of storing considerable surplus in case the season proves to be favorable.

If you have no maturing queen-cells, take the first colonies that prepare to swarm, and divide them into three or four strong nuclei, giving all except the one that has the queen a queen-cell already built on the combs; and, as soon as the young queens are laying, build up as fast as you can. Such colonies gave us a good surplus during the season of 1912. These methods not



Hiving a swarm in a soap-box. From F. E. Bornemann, Bay City, Oregon.

only favor increase, but at the same time help to keep down natural swarming.

The rules given above are for those who handle their bees often, and depend on their manipulation to control swarming. Of course, queens' wings must be clipped; and while it gives one perhaps about as much work as to depend on natural swarming, it saves a lot of time. I forgot to say that if, at any time at the close of the day, you have on hand a surplus of brood-combs, they can be put on top of some weak colony or placed in some colony that may be loafing, making them care for the brood.

For those who have but one yard of bees, and do not care to handle them more than is absolutely necessary, and for those who prefer to let their bees swarm naturally, I know of no better way than to hive early swarms into hives filled with dry combs, and, after eight or ten days, run the new swarms into those that swarmed first. In this way second swarms are largely prevented, all are kept strong, and the largest amount of surplus secured. While this does not wholly control swarming it does control increase in a very satisfactory way.

If you lack empty combs, place over strong colonies as many supers full of frames filled with comb foundation as you are likely to need. The bees will draw out the foundation into comb more economically than in any other way. New swarms or shaken swarms do not, as a rule, take kind-

ly to foundation so far as my experience goes, and often desert a hive filled with it when they will accept half-drawn combs with the greatest pleasure.

Middlebury, Vt.

CHOOSING A LOCATION FOR AN APIARY

The Importance of a Near-by Source of Nectar and Pollen in the Spring

BY J. L. BYER

At this season of the year many, no doubt, will be considering the matter of starting apiaries; and while the experienced beekeeper needs no advice along this line, a few hints to beginners may not be out of place. Naturally, when thinking of starting an apiary of any size, the first thing that will be considered is the prospects of having enough honey-producing flora to produce a crop of surplus honey; for, no matter how many colonies of bees one may have, and no matter how strong they may be in numbers, if there is no forage for the bees at the time surplus should be gathered, all the previous labor of the beekeeper and of the bees will amount to naught. However, situations of that nature are scarce; and, as a rule, if one has bouncing big colonies at the opening of the clover flow he may safely count on getting at least a partial crop, one year with another.

Granted, then, that there is enough clover,

basswood, or other staple sources of nectar to give promise of a yield of honey, the next thing to be considered is the spring-feed proposition. Indeed, after a number of years' experience I am a bit doubtful if this question should be designated by "next" or by "first," as every year I am more than ever convinced that a good spring location is about as essential as any thing in so far as the getting of a crop of honey is concerned. One thing is certain to me, at least; and that is, that I would take an ordinary clover location coupled with a first-class spring locality in preference to one having a superabundance of clover, but with practically no spring feed. It is very essential to have this spring feed right *near* the apiary if possible, as in the trying changeable weather of the spring season many bees are lost at a critical time when all are needed, if they have to fly long distances to the alders, pussy willows, etc., in search for early pollen and honey. If I had the choice of two locations, in one of which there was abundance of spring feed within half a mile of the apiary, while the clover and other summer pasture was two or three times that far off, and the other one with abundance of clover right near the yard, but the spring feed scarce and a long distance away, I certainly should prefer the first one described, every time. I have had, in the past, locations of both these kinds, and *always* the ones with spring feed near by have given best results.

Having decided on the section where you

want to have an apiary, the next thing is to find a suitable spot to place the bees. Shelter is very desirable; but unless it is one of the natural kind I would just as soon have none at all. In fact, while I like yards sheltered, for more than one reason, yet right near us I know of apiaries that have wintered outside, right in the open, year after year, and the loss has been but little heavier than in more sheltered apiaries. Apiaries sheltered too much, and not in the right way, are like a two-edged sword—apt to cut two ways. Bees may be enticed outside by the sunshine, only to be chilled to death by cold winds; whereas the same hives out in the open would have the cold air circulating around them so that the bees would not leave at all in such treacherous weather. In the past I have been having most of my yard in orchards, and in many ways these are about as desirable locations as one can find. Objections are that snow usually drifts badly among the trees; and in many orchards the bees are too close to dwellings, cultivated fields, etc., and at some seasons they are apt to make trouble for those who own the property the bees are on. Of course I am now speaking from the standpoint of out-apiaries. I never like to have the bees give any trouble if it can be avoided; and so when starting a new yard or moving one of these I now have, I am trying to have the bees placed in an out-of-the-way position where they will be no bother to any one, and where I shall not be placing any de-



A new location for one of J. L. Byer's out-apiaries. The yard is sheltered on three sides by a cedar swamp, and the buildings break the force of the wind at the one open side.



Lone Tree apiary of Bell E. Berryman, Central City, Nebraska. This apiary of 190 colonies was built up from 55 weak colonies in the spring of 1912, and yielded 9000 lbs. of honey.

pendence on any one at the place looking after them.

While it is essential to have some one pay occasional visits to the yard to see that all is well in so far as general conditions are concerned, such as hive-covers being all on, etc., I have found it best not to depend on anybody watching for swarms, etc., as I then know what I have to do, and experience has proven to me that this is the best policy.

Water for the bees in the spring months is a very important matter—in fact, one of the necessary things to see to if you wish to avoid heavy losses of bees, as will surely result if they have to travel a mile or more for their water; for assuredly they must have water, and lots of it, if brood-rearing is to go on at the rate it has to in order that the colonies be strong enough for the main honey-flow in June. Many arrangements have been suggested, and actually used, for providing water right in the yard; but if the bees can get it near the apiary in a nicely sheltered position they seem to prefer it to getting it from a barrel or other arrangement fixed up for them. While one can fix up a place for the bees to get water right in the home apiary, it is a different proposition in an out-apiary, and—well, to be perfectly frank I shall have to confess that I have to let the bees get their water the best they can, as it would be a lot of work to drive around to a number of yards, filling up barrels, etc. At the same time, I am free to admit that this work would pay, if the bees had no

access to water quite near their hives. At each of my yards at present, water is quite near, so I am saved the trouble of supplying it artificially.

This spring I have to move one of my apiaries; and as the location I have selected seems to be about ideal I have taken a picture for the purpose of illustrating what I have been trying to describe as the desirable features of a good location. As will be noticed, the honey-houses have already been moved, and are standing upon temporary foundations till the snow goes in the spring, when the buildings will be lowered and leveled, and placed on cedar blocks. The bees will not be moved till after they have had their first flight. They are wintering outdoors half a mile from where they are soon to be moved. Two empty hives, one on top of the other, are shown in the open space, and this spot will be about the center of the apiary when bees are placed. The cedar swamp shown will be on the north, northeast, west, and southwest, while the only open space will be at the southeast. On this side the buildings are placed end to end, not so much for protection as to save fencing, as I shall have to fence the plot to keep stock from roaming among the hives and upsetting them. This piece of ground (about half an acre) is level, and high and dry; and while the shelter is a little *too* good(?) to suit me, still, it is a different matter from a board fence, as bees will not be tempted to fly over a wide space of trees as easily as they can go over a high board fence, to drop at



FIG. 2.—Hiving the swarm after it was carried home in a cloth.

once, never to return. While, as I have said, the ground is high and dry, yet right near where the bees will stand the ground slopes abruptly toward the swamp, and there the soil is springy, with the water oozing out all summer. Here the bees can get water in a sheltered location, and never have to fly 50 feet from the yard. The nearest cultivated field is about 20 rods away on the east side; and as this is the only side of the apiary that has cultivated land near, naturally we are hoping that all danger from that source will be reduced to a minimum. As to spring feed, it starts right at the south end of the apiary; and the bulk

of all there is in the vicinity is within half a mile of the spot. Abundance of alsike near by, with about enough buckwheat grown to supply winter stores each season, about completes the description of this location.

Mount Joy, Ont., Canada.

9000 POUNDS OF COMB HONEY FROM 55 COLONIES, SPRING COUNT

BY BELL E. BERRYMAN

I am sending you a photo of one corner of my apiary of 190 colonies. In the winter of 1912 I lost 45 colonies out of 100. My 55 colonies left were all weak and short of stores in March. I fed them liberally, and increased them in June to 190 colonies by dividing, and harvested 9000 lbs. of section honey. The largest yield from any one colony was 240 lbs. of section honey. I lost none last winter, as the winter was very mild compared with the one before last.

Central City, Neb.

CHASING A RUNAWAY SWARM 2½ MILES

BY G. FRANK PEASE

Bees swarmed here last summer as never before in my experience, even when the flow of nectar was slow. The pictures shown are of a runaway swarm from one of my hives. I chased the bees 2½ miles, and brought back the swarm on the limb on which the bees had settled. The limb was thrown over my shoulder, with a cloth



FIG. 1.—A runaway swarm that Frank Pease, of Marshall, Michigan, chased for 2½ miles. Photo was taken from the top of a building.



FIG. 3.—Enough bees to pay for the 2½-mile run.

wrapped around the bees. The swarm, Fig. 1, extended for three feet along the limb.

A tinner made the smoker on top of the box, from heavy copper. The bellows was from a Clark cold-blast smoker.

In Fig. 2 is one of my glass and tin combination covers. I pulled a string to take the picture.

BEES POISONED BY A BLACK SPIDER.

I was at one of my hives this morning, and saw a black spider killing bees. He ran toward the entrance, and two bees pounced on him. He held them off the length of his legs, and they died inside of a minute without his even biting them; then he dragged them back to a pile of dead ones which he had killed—forty or fifty of them, and seemed to be sucking the honey from under their throats. Others flew toward him and merely touched him a little, and they seemed to be stupefied. He must have ejected poison toward them, such as I have smelled when a spider has been near my nose. The bees would cease to struggle in a very short time, and could not get their sting near the spider as I expected them to do.

Marshall, Mich., June 13.

ALEXANDER PLAN FOR MAKING INCREASE CARRIED OUT TOO LATE

BY M. J. KAUFMAN

About a month before the time this picture was taken I started with an eight-frame colony and a select queen. I fed the

bees steadily from the time I got them, which was the 3d or 4th of May, 1911; and as the colony became very strong I decided to divide it. I divided them according to the Alexander method, and this was the lower hive. When they swarmed, which was three or four days after I had separated them, they had drawn out only five of the frames from the foundation. They had plenty of room, and the weather was not unusually hot. I had given them a select queen; and, not having another hive at the time, I cut out the queen-cells they had built; and the queen being clipped, and not being able to get away, the swarm returned of its own accord. Notice that I had raised the super as shown in the picture, as I thought it might afford ventilation if the bees thought it was too hot in the hive.

New York.

FORMING NUCLEI TO PREVENT SWARMING

BY R. M. SPENCER

When the swarming season begins in March we go over all the hives once every eight days, cutting out all cells, making nuclei, or, where colonies have good stock and cells, we often make straight division. When we are able to get the young queens we take frames of bees containing about three times as many bees as we want, and shake them in front of the small nuclei on the ground, allowing them to run in and to cluster on the several frames of brood pre-

viously given the nuclei. About a third of these bees are young nurse bees, and will stay with the brood. This method avoids any trouble of closing up or opening later. Every eight days we again shake a frame of bees in front of each one of these nuclei, thus helping the nuclei and holding the full colonies in check from swarming.

BEES SLUGGISH BEFORE THEY SWARM.

One of our great troubles in this locality

is spring supersedure of queens; and in many cases this causes swarming when it would not happen otherwise, the breeding season being so long that many of the queens fail in the spring of the second year. Often by simply opening hives and taking out frames of bees one can tell by the action of the bees whether there are cells in the hives. The bees are always filled with honey, and act sluggish when making prep-



Swarm returning to the hive because the queen was clipped.

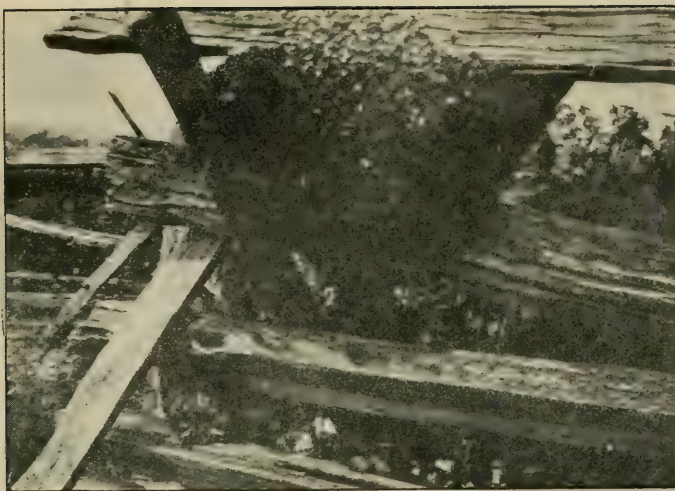


FIG. 1.—A swarm that chose a very convenient clustering-place.

arations for swarming. When bees are active on the combs there is little danger of swarming. By using this method of judging when colonies are preparing to swarm I have often gone over 500 or more colonies in a day, and very seldom make a mistake as to whether a colony will swarm within a week.

GOOD VENTILATION AN AID IN PREVENTION OF SWARMING.

Another great preventive of swarming, as all beekeepers know, is ventilation. All our hive bottoms are loose, and have full-width entrances on both ends. As soon as warm weather comes, both of these entrances are opened full width. I am cer-

ence with a swarm a short time ago proved this quite conclusively.

On Friday, May 28th, my brother-in-law phoned me from the Cashel yard that a large swarm had come out, and that he had caged the clipped queen and had let the bees go back to the hive. I felt pretty sure that the bees were superseding the queen, and knew that there was danger of their coming out any time with a young queen, departing for parts unknown. However, I could not get over before the following Monday, so I let them take chances.

When the family were at church Sunday I suspect the colony swarmed again and clustered in the top of an apple tree in the apiary. Any way, Monday forenoon the swarm was noticed leaving the tree and starting off north. My brother-in-law followed them, and they went so slowly that he just had to walk to keep up with them, notwithstanding the fact that the day was calm with no wind to hinder their flight. They went less than a quarter of a mile and alighted on the top of a rail fence. Fig. 1 shows the swarm nicely clustered on the rail fence. Fig. 2 shows how the rail was lifted



FIG. 2.—Shaking the cluster into a hive.

tain that this prevents swarming to a great extent.

Nordhoff, Cal.

HIVING A SWARM CLUSTERED ON A RAIL FENCE

BY J. L. BYER

Before a swarm leaves the place where it has clustered after swarming, it is thought that, as a rule, scouts are sent out, and a place is found before leaving. This may be the rule, but, like all other rules, there are exceptions to the rule, and a bit of experi-



FIG. 3.—Safely hived. (J. L. Byer sitting on the fence.)

from the fence and the swarm gently jarred into the hive. The picture in Fig. 3 was taken after the bees had been shaken into the hive; and if ever a crowd of bees were glad for a home they surely were, as they settled down right at once with that home cry so well known to the beekeeper.

My nephew, Leslie Williamson, happens to have a camera, and that explains how we got the pictures. By the way, I rather smiled when the picture was shown me, as I am perched on the fence in Fig. 3. It is rare that I wear a veil except in extracting time, and there was no need of one at all under the circumstances, as the bees were not at all cross. I had put it on when first going over to where the swarm was, and had forgotten all about it till after the camera had snapped.

Mount Joy, Ont., Canada.

SWITCHING THE HALVES OF A DOUBLE BROOD-NEST TO CONTROL SWARMING

BY J. A. YEOMANS

In the June 15th issue for 1912 I had an article, p. 366, concerning some experiments I have been making with the view of reducing swarming and at the same time increasing the production of surplus honey. I was much pleased to hear from beekeepers from all sections, showing their interest in these experiments. One man in particular reported as having worked along the same lines with results and conclusions the same, so far as he had progressed.

The summer of 1912 was a poor one for honey production in eastern Washington.

Warm summer weather was a scarce article. A few warm days would be followed by a spell of cold or rainy weather that drew on the surplus gathered by the bees during the warmer period. Some of my beekeeping friends reported practically no crop, and at least one said that he feared that not enough was on hand for winter stores. My crop was 65 pounds per colony, spring count, which I considered satisfactory under the conditions.

During the season I tried some experiments

which I am confident cut down my yield somewhat. For instance, I was anxious to see how early I could raise the "hatching story" of the brood-chamber and get the bees to start work in the supers (supers placed below it and above the laying story). I therefore tried this arrangement very early, before the hive was at all crowded, and before there was any real need of it. In fact, the result showed there were not enough bees in the divided colony to generate sufficient heat if weather turned cold.

The bees started work at once in supers (in which I had placed some bait sections); but in a few days the weather turned cold and rainy, and honey-gathering was stopped completely for several days. The field bees having all gone down from the hatching story, leaving only young bees in it, there were not enough left to cover all the brood, and some of it was chilled and killed. In spite of this setback the colony built up very rapidly. I should not have commenced switching so early. I feared the above would happen, but wished to try it any way. If the hive had been full of bees the result would have been different. I did not wait until the colony was strong enough.

The results of the past year convince me that the principles involved in this system are right. I expect and hope the beekeeping fraternity will improve on the details.

For the benefit of those who may not have the June 15th number, 1912, I will repeat in a few words the principles of the system, and will then try to answer the questions that have come to me from all sides. I have had letters from California, Oregon,

Wisconsin, Alabama, Pennsylvania, and one from Switzerland.

First, the only special equipment needed is a wire screen with a Porter bee-escape. This should be bound with strips of wood of sufficient thickness to give bee space above and below. A friend of mine, Dr. R. E. Shanks, of Spokane, has made an escape which is a great improvement on the crude ones I used in my experiment. Through his courtesy I enclose photos of these escapes. Dr. Shanks has been following this system for two years, and, although a beginner in beekeeping, he has had no swarming. The wire screen should be the full size of the hive used, so that the heat of the lower part of the colony will rise into the hatching story, and so that the hive odor will remain the same. Fig. 1 is a front view of the screen used.

The Porter escape is cut off just in front of the round hole in the back end of the top of it. It is then imbedded in a strip of board crossing the front of the screen. A passageway is then cut through the frame out to the open air in front, and a plug made which should be used after the first 24 hours after a switch of stories is made.

When the plug is out, a piece of super section should be slipped in, closing the opening to the lower story. The light which enters through this opening will attract and empty the hatching story of all field bees in a few hours. If the opening is not closed in a few hours, many of them will commence to use it as an entrance. After 24 hours the slat should be taken out and the plug inserted, so that all bees entering the escape will go into the lower story and not be able to return.

Photo No. 2 is the top view of the escape-screen and No. 3 is a bottom view. From these views I think any beekeeper will catch the principles involved.



FIG. 1.—Front view of Yeoman's screen escape-board. The plug used is shown standing up on the screen.

Several have asked me if the plan would work with the ten-frame hive. I use the ten-frame Danzenbaker, and feel sure the system will work with any size of hive. I now winter my bees out of doors in double brood-nests. Yesterday (February 16) the temperature rose to 51 degrees, and the

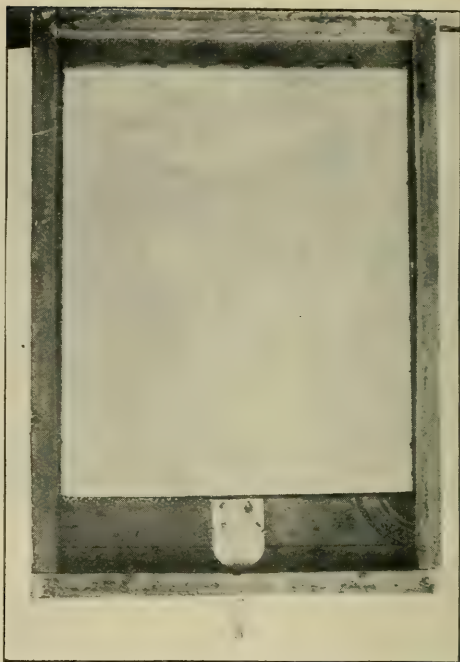


FIG. 2.—Top of screen—next to bottom of hatching story.

bees had their first flight since fall. If I did *not* winter in double brood-nests I would put on a second brood-chamber as soon as the bees commence to build up strong in the spring.

A SYNOPSIS OF THE PLAN.

As soon as surplus honey commences to come in, or if there is any sign of swarming (or if a new beginner is not familiar with these indications, when both stories are well filled with bees) raise the upper story and put a super of sections below the upper, or "hatching story." At the same time (or 24 hours later, which I find is much easier because the field bees have gone below and can not get back, thus reducing the number of bees in the upper story, and making it much easier to find the queen) remove the queen to the lower brood-nest, which we call the "laying brood-nest."

Ten days later, switch brood-nests after cutting out any queen-cells which may be started in the "hatching story." This makes what has been the hatching brood-nest for the past ten days the laying brood-nest for the next ten days. The bees hatched during the past ten days, and the honey and pollen used during this time have emptied thousands of cells ready for the queen to lay in, and this she promptly does as soon as it becomes the bottom story and she is placed in it.

This switching keeps the queen laying

continuously, removes her and the field bees from all brood and eggs every ten days (virtually the same as swarming), and prevents brood-nests from becoming clogged with honey. The supers remain constantly in the same relative position to the hive entrance, and the field bees are not interrupted in their daily habit of storing the surplus.

Repeat this operation every ten days through the swarming season, which will vary according to locality, or introduce (24 hours after switching) a young queen to the top or hatching story. As this story contains young bees only, it is an ideal condition for introducing a new queen. Then kill the old queen the next time you switch, and leave the hatching story on to hatch out entirely.

I think that most beekeepers agree that a young queen rarely swarms during her first season, so you will by this means, as soon as a young queen is introduced, end the danger of swarming in nearly all cases.

A Pennsylvania friend asks about using a hive filled with foundation and placing it below an old hive in order to get two brood-stories to start the plan. I should prefer to divide the old brood-nest as nearly equally as possible, and fill out both stories with frames of full sheets of foundation.

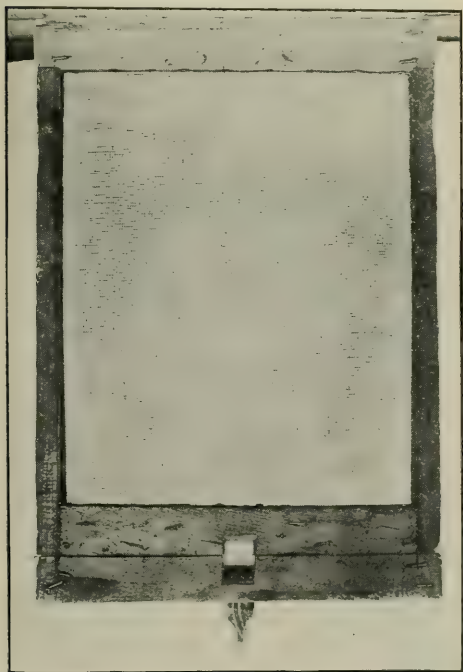


FIG. 3.—Lower side, next to supers.

I like to have both "hatching" and "laying" stories have about an equal amount of brood in them. Also, by dividing the old brood-nest equally there will be enough old combs containing pollen and honey to supply the nurse bees in the hatching story for the ten days they are shut off from all outside supply. A supply of honey and pollen sufficient for this period of time must always be on hand in hatching story.

Spokane, Wash.

COMB HONEY FROM A SHORT FLOW

Worker Comb from Starters

BY A. V. SMALL

Last summer the swarming impulse was above normal; and as our flow is usually of short duration, comb honey could be secured only by a plan that would satisfy the swarming desire, and at the same time force the June flow into the supers.

The plan which gave me the best results was to shake the bees into a contracted chamber of starters. This was done in the early part of the flow. The colony was left on its old stand, and I merely took away the brood, contracted the brood-chamber to the space of six combs, and gave the bees a set of starters. In the colonies treated there was considerable comb in the supers; and in order to establish the brood-nest I placed a frame partly filled with young brood in the center of the contracted brood-chamber, filling out with five frames of starters. This was the first hive tried.

There was a good flow on the day the work was done, and the bees worked right along as though no change had been made. The queen began laying in the empty cells in the frame of brood I had placed in the center. The bees began to work on the starters, and every thing went well except that I had established the brood-nest, but had not provided the storehouse for pollen. The brood comb that was used had been taken from near the center of the hive, and was almost free from pollen. In the average brood-chamber the two outside combs contain nearly all the pollen in the hive. If the queen is good they are about half filled with brood and the rest is honey. These two outside combs were gone, and the first day's pollen went with the honey up into the sections.

The next colony that built cells I shook, contracted the brood-nest to six frames, leaving them their two outside combs and filling in the center with four frames of starters. In this case the pollen storehouse was un-

disturbed. A bee coming in with pollen could go to the outside comb where it had been in the habit of going, and unload as usual. There was not a single cell of pollen in sections over brood-chambers where the outside combs were left in.

The surplus honey went up into the sections, as the two outside combs were nearly filled to start with, and the four frames of starters in the center were occupied by the queen almost as fast as they were drawn out. This gave us four good worker combs from starters, for it seems to be a fact that the bees will build worker combs as long as the queen keeps filling them with eggs. This is the reason it is necessary to contract the brood-chamber.

If the bees had been given eight or ten frames of starters they would have drawn them out faster than the queen could occupy them, and a large amount of drone comb would have resulted. Then, too, as soon as the bees got ahead of the queen a good deal of honey would have been stored in the brood-chamber. This is the reason one must use starters when following this plan, instead of full sheets, if he is to get the best results. The full sheets are drawn out too fast.

In a week or ten days from the time of shaking, these combs will be drawn out and filled with brood. At this time, if one should give four more starters he *might* get worker comb; but this can not be depended on, and it is more desirable to fill out the brood-chamber with full sheets or with four of the frames that were taken away at the time of shaking. These frames will be practically all sealed now, and a few frames of hatching brood are desirable at this time in order to keep up the strength of the colony.

Worker combs can also be built in weak colonies, but they are very apt to be round-bottomed, with the lower corners incomplete. The following year this corner space is usually filled in with drone comb, making an undesirable frame.

Where starters are used with shaken swarms, as described above, the combs are full and square at the corners, having all the appearance of foundation-built combs.

As a word of caution, put on supers with *bait sections* as soon as the colony is strong enough to warm them up; and be sure there is some work being done in the supers at the time of shaking. The brood from the first colonies shaken can be placed above queen-excluders over the colonies one expects to shake next. Within ten days, about half of this brood will have hatched, and the other half will be sealed. If one wants increase he has merely to set this hive body

of sealed brood and bees on a new stand, and in a *few hours* give them a ripe queen-cell or a queen. This is one of the most satisfactory methods of increase I have ever tried.

The colonies over which this brood was placed are now ready for shaking.

Colonies strengthened in this way just at the beginning of the flow usually give me the best results in comb honey. While I have spoken of leaving this brood over the colonies ten days, a week is long enough, and gives three more days of flow for the sections. The brood from the colonies last shaken can be placed over colonies too weak to work in sections; and if increase is not desired the combs can be left over these colonies to receive what surplus they may make.

North Topeka, Kans.

THREE SWARMS IN ONE HIVE

BY A. G. LUCIER

It may be interesting to know how the bees got on the top of the hive as shown in the illustration. Hives No. 1, 2, 3, in a row, were preparing to swarm at the same time. One morning No. 3 cast a big swarm. The bees were hived in the usual manner as practiced with clipped queens. The very



Three swarms that united with the bees in one hive, making a colony too large for the hive.



An August swarm that built comb in the open.

next day they came out again: and, finding that their queen could not accompany them, instead of going back to their own home they went into hive No. 2, and in a few minutes came out again with the bees in that hive, and repeated the process as before stated, but went into hive No. 1 with the bees from No. 2. The weather being rather warm, the cover of the hive was lifted to ventilate. There were so many bees when the three swarms united that they fairly boiled over, as shown in the photograph.

Powell, Wyo.

AN AUGUST SWARM

BY A. B. GILES, M. D.

I am sending you a photo of a swarm which came out of a hive on the 27th of last August. They clustered in an apple tree, built comb, and had some brood. This picture was taken Oct. 13 by one of my neighbors, Mr. R. J. Clemmitt. I took 48

sections of white honey from the hive from which they came. It is remarkable that they swarmed so late in the season that it was a first swarm, and that they stayed so long in the open.

Forest Park, Md.

SWARM CONTROL—INCREASE AND DECREASE

BY RALEIGH THOMPSON

If a beekeeper desires moderate increase and a crop of honey he should first let his bees swarm, and then set the new colony on the old stand with the old colony by the side of it. In four days he should remove the old colony to a new location, put on a queen-trap, and wait for the second swarm, which will issue in from nine to fourteen days from the time the first swarm came out. He should then catch the virgin in the trap, which will prevent the swarm from leaving, for a young queen is very gay. The trap should not be removed until the bees begin to return. Then the old hive should be removed, and another one put in its place. Put the trap on this hive and let the queen loose through the hole in the trap for that purpose. Provide for the bees a frame of eggs and larvæ.

Take the old colony to a new location, and the next day divide it into as many colonies as can be supplied with queen or good cells. Give them a frame of eggs and larvæ. It makes them feel more at home. One should remove all supers from the first colony at the time it is hived. This is the best plan for the novice, and I think for older beekeepers as well, for there are very few queens that will beat swarming queens.

THE SHAKEN-SWARM PLAN.

Now for swarm control. I use the shaken-swarm plan given in the A B C and X Y Z of Bee Culture when I do not allow natural swarming, only I go a few steps further. I set the old hive by the side of the new colony, and in six days I put on an entrance-guard and shake the bees into the new colony again, leaving only enough to take care of the brood and queen. One must be careful if it is a natural swarm or he will find one or more queens on the guards. Now save the best cell or queen, and destroy all the rest if they are not needed elsewhere. Set the old hive on the other side of the new one, leaving an entrance at the further corner. In four days more move it to the other side, leaving the entrance at the further corner again. If it is a shaken swarm, one must raise queens for the hives, for a queen made by a shaken



One of J. M. Buchanan's outyards standing on the site of an old Yankee fort near Franklin, Tenn.

swarm is of no use. Now, if one does not want any increase, leave this old hive by the new one; and, after the flow is over, work the old queen-hive into the new queen-hive.

If I wait a little too late I use the paper plan of uniting, killing the old queen first. The best plan is to remove all the brood from the old queen to the new one every fifteen days as long as there is brood to move, for the old queen and bees are worthless, as they are all old, and the hive with the young queen is sure to winter, for the bees are all young, and there are plenty of them. The old hive and combs may be used the next year. These plans are applicable to a home yard rather than to an outyard, unless the out-apiary happens to be within a few miles of home.

If one has more bees than he wants to winter, he should double up, following the paper plan. If he has a choice of queens he should kill the undesirable one. If he has no choice, he should pay no attention to the queens. The bees will take care of that part of it. In southern Indiana I win-

ter them in two ten-frame stories, and they are boiling over with bees when the flow comes—about May 20.

Put all of the brood and bees into one hive, and put on one super of sections with full sheets of foundation, and another on top of this with drawn combs or one super. Just as soon as the bees begin to draw out the foundation, raise it up and put another under it. If the brood-chamber is not full of brood, use only one super; but in order to secure the best results it should be full. Put an excluder on some of the weak colonies, and stack the empty combs on them about three to the hive, for use later on, for part of these colonies will swarm within ten or twelve days.

One should put the sealed brood in the center of the hive—that is, if he has a hive full. If not, he should put empty combs in the center. If sealed brood is placed in the center, as soon as the brood hatches the queen will fill the cells with eggs and put more honey in the super. If one does not put eggs and unsealed brood on the outside,

when the sealed brood hatches they will fill the combs with honey, and there will be less honey in the supers, and more swarming, for the bees will always fill the outside combs with honey if they get a chance; and the longer there is brood in them the better.

Underwood, Ind.

OUT-APIARY ON THE SITE OF AN OLD FORT

BY J. M. BUCHANAN

I am sending a photograph of one of my outyards, which, in its location, is somewhat unique. On the summit of a hill, overlooking the town of Franklin, where, fifty years ago, was fought one of the bloodiest battles of the war, stands an old fort, once guarded by Yankee bullets, but now garrisoned with Dago stingers.

The apiary occupies the site of this old fort, which at present consists of a level spot partly surrounded by a bank of earth in the form of a horse-shoe, with the open end toward the south, thus providing an excellent windbreak for the hives. Part of this embankment can be seen in the picture. I have a nice honey-house and storeroom here, built so that it can be taken apart and moved. The apiary is easily reached with the automobile, which, by the way, we find indispensable in out-apiary work.

This yard contains at present fifty hives, run for extracted honey. It is surrounded by extensive blue-grass pastures, which are white with clover bloom during May and June. There are several groves of locust near by, and this forms one of our chief sources of honey. The locust honey is water-white, and of fine flavor, and slow to granulate. It blooms about the last of April; and if the weather is fair it yields quite heavily. During this flow last spring a colony on the scales made a net gain of 100 pounds in ten days.

Franklin, Tenn., Dec. 19.

IN MEMORIAM OF PAUL MICKWITZ

BY R. MICKWITZ

[The unfortunate subject of this sketch was at Medina in the winter of 1907-'08, learning what he could of American methods, and he later spent some time as a student with R. F. Holtermann. He was above the average in intelligence, as shown by his article on page 1257, Oct. 15, 1908, written, if we are not mistaken, when he had had only about a year's study of English. It was his intention to familiarize himself thoroughly with our methods, and then take the new ways back to his own country.

His death marks the end of what would surely have been a most brilliant career. It is the old, old story of an ambitious man so worried and hindered by a diseased body that the clear vision of life and

its possibilities was dimmed and distorted. Our sympathy is extended to his family and friends in Finland.—Ed.]

Dear Mr. Root:—I find it my sad duty to inform you that my brother Paul has voluntarily taken leave of life. He belonged to that class of men to whom life is especially a burden. High ideals and large plans, in connection with a sensibility which shrank from opposition, yielded to his inner conflicts. His was a retiring nature that prompted him to bear difficulties alone. He had resolved to devote himself to beekeeping in this country, and to further it with all his powers. His time was short; still he had, thanks to an ardent enthusiasm manifested to all who had deal with him, many friends and assistants in modern beekeeping, a knowledge of which he acquired in America. Of the great future for beekeeping in Finland he was, up to the very last, fully convinced. His bodily power was broken by a series of complicated inner troubles, and he leaped from the deck of a ship in the open sea on the night of November 2.



The late Paul Mickwitz, former student from Finland, of American methods in beekeeping.

He was much encouraged to see in GLEANINGS for Oct. 15, 1908, his contribution, with comments, in regard to moving bees on a boat with Mr. Holtermann. I can assure you that your journal has but few readers as much interested in it as was my brother. He read especially, in connection with his agricultural studies, much about apiculture. In one of the note-books which he left he had laid a plan for a yearly review of the most striking paragraphs, taken from the most prominent writers of all lands, and which he designed to publish in several languages, in order to further a union of the beekeepers of all lands. But he was not permitted to carry out this project.

His fifty stands of Carniolan bees in Langstroth hives have been taken over by myself; and I will do my best to carry on the work he began. I enclose a picture of Paul, so that you can use it in your journal if you so desire.

Alberga, Finland, Dec. 14.

THE JUNGE-PIERCE HIVE-VENTILATOR AND NON-SWARMER

BY EDMUND W. PEIRCE

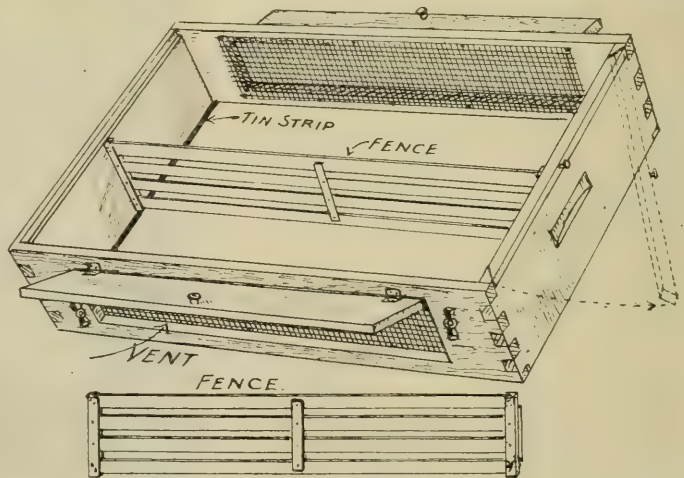
Wanted—a solution of the swarming problem—a problem that hitherto has baffled solution except by time-consuming manipulation or the use of complicated, cumbersome, expensive devices. Even these expedients, in the hands of an average professional apiarists, have been productive of very indifferent results. Indeed it may safely be affirmed that neither manipulation nor machinery can of itself ever prove entirely effective. The most that can be hoped for, when the complexity of this problem is considered, is the perfection of a simple and inexpensive appliance that with minimum manipulation will, in a majority of cases, prevent swarming; and, when it does not actually prevent, will at least measurably control or retard it. This I believe has been accomplished.

A few years ago there appeared in GLEANINGS a description by Mr. Walter S. Pouder of a non-swarmers invented by Mr.

H. Junge, of Cumberland, Indiana, which had been used by him with considerable success, and on which he had obtained a patent. It consisted essentially of a deep super or shallow hive-body fitted with slats or fences suitably spaced, and with removable cleats for ventilation, designed to be placed on the hive between the bottom-board and the brood-chamber.

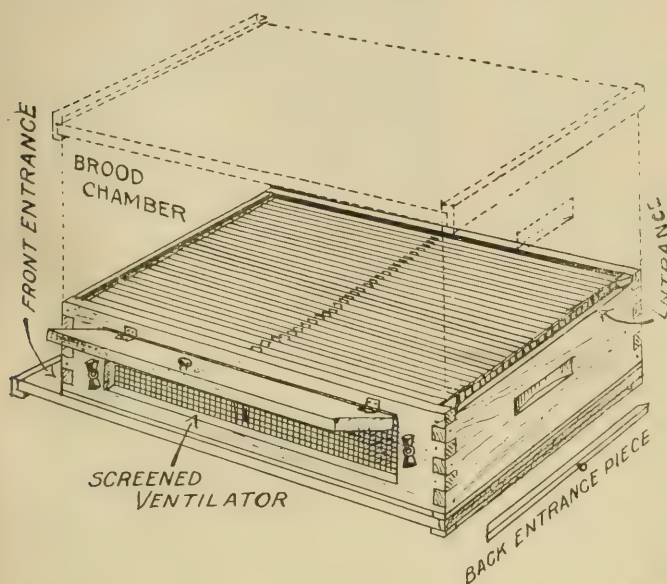
It is common knowledge among bee-men that room and ventilation are two most important factors in the prevention of swarming. How to afford these essentials without the incidental disadvantages of surplus comb-building, propolization, or drafts through the hive, has been the subject of much thought and experiment. Mr. Junge and I, each working independently and without the knowledge of the other, arrived at practically the same solution of the problem. A comparison of conclusions and modification and adjustment of ideas has resulted in what is known as the Junge-Pierce hive-ventilator and non-swarmers.

The illustrations will make clear the principal details of its construction. A deep super is fitted with a series of fences so spaced as to insure maximum ventilation to the exclusion of comb-building. From each side of the super a section is cut out, and the opening fitted with a door hinged at the top, and opening to various widths determined by turnbuckles at its ends. This opening is covered with screen wire tacked on the inside. The meshes, three to the inch, are large enough to afford free venti-



lation, and easy egress and ingress to the bees, yet small enough to exclude robbers, spiders, and moths. A removable cleat in the end of the super affords additional ventilation when desired.

The non-swarmers is left on the hive all the year round, and colonies so equipped seem to winter better than those without the appliance. It is understood, of course, that in cold weather the contracted entrance



is used, and the ventilators closed down tight. During the working season, or when the weather is very warm, the larger entrance is given and the ventilators opened wide. The ventilation is under perfect control, and can be adjusted to conform to varying weather conditions. It is very essential that abundant super room be given to prevent the crowded condition so conducive to swarming.

The principles embodied in this invention will be readily understood. The construction is such that there is free circulation of air under the frames, but absolutely no draft through the brood-nest. Surplus heat is carried off without danger of chilling the brood, and the bees are saved the greater part of the labor of fanning. Thus workers that otherwise would be so employed are rendered available for service in the fields or within the hive, to the obvious profit of the beekeeper. In order to enter or leave the hive, the bees must traverse at least a part of the non-swarmers. They are thus given the impression that they have abundant room, though in fact they are cheated out of it, so far as storage is concerned, the internal arrangement being such that the space is not available for comb-building. Furthermore, a convenient clustering place is afforded the nurse-bees, and this, by relieving the internal congestion,

tends to prevent the development of the swarming impulse.

As has been indicated, it is not claimed that this invention will at all times and under all conditions prevent swarming. It has been pretty clearly demonstrated, however, that, with intelligent use, it will prevent swarming in a great majority of cases; and when it does not actually prevent it, it will so retard it that days and possibly weeks of honey-storing will intervene. Moreover, swarms, when they do issue under these conditions, are apt to be unusually large and valuable.

While making no extraordinary claims for their simple device, the inventors feel that therein are involved principles that are vital factors in a satisfactory solution of this hitherto unsolved problem.

Zanesville, Ohio.

USING A STRAIN OF BEES ADAPTED TO ONE'S SYSTEM OF MANAGEMENT

BY E. S. MILES

The amount of prevention desired must depend largely on one's location and the time of the main crop, as well as on one's knowledge and ability to make increase by other methods.

Where the main crop comes early and the flow is short, and one must get the most possible surplus from it, it has been my experience that the colonies that do not swarm at all, and that have no desire to, either as a result of manipulation or because of breeding, are the most profitable ones.

My main crop is basswood, which lasts from three days to two weeks, sometimes helped out a little with clover, catnip, and buckbrush.

It does not come so early but that with a favorable spring a colony *might* swarm; and with proper feeding, both the swarm and the parent colony be in condition for the flow. But our Iowa springs are so variable and uncertain that I find it safer to count on getting only enough from the best

colonies to bring up the weaklings so that, if I can reach the flow with all the colonies of that winter in good condition, I feel satisfied. Then, as mentioned before, I expect more honey if they do not swarm during our short flow.

I feel sure there are several practices the beekeeper can follow that tend to increase the number of colonies, and that may prevent swarming. I will try to give them in the order of their importance as they appear to me:

1. Breed all queens from colonies that have shown the least inclination to swarm, using queenless and broodless bees to build the cells, or at least to start them.

2. See that no colony is crowded for room up to the middle of the flow at least.

3. See that each colony is blocked from the bottom-board from $\frac{3}{4}$ to one inch in front, just before weather hot enough to crowd them out begins.

4. See that every colony is protected from the direct rays of the sun from about 10 A. M. till about 4 P. M.

5. See that every colony has comb built in readiness for the first surplus that comes.

It will not be necessary to dwell much on any of these points except the first.

The question of the *strain of bees*, as related to one's system of management has not, in my opinion, yet had the consideration its importance deserves. It is well known, and acknowledged by a great many practical honey-producers that almost all manipulation has to be varied to suit the characteristics of different colonies. Now, if we want a certain plan of manipulation to apply to all colonies we must have less variation in our colonies; and in order to handle the most colonies possible with a given amount of labor we *must* apply one manipulation or plan of treatment to all—manipulation here being considered only in its relation to swarming. If there were no variation in bees in regard to swarming, a manipulation that would give us the desired result with one colony would with all.

It might be said that a manipulation such as "shook swarming" or any process that cripples a colony or keeps it weak enough to prevent swarming proves that that manipulation answers the purpose.

But for the locality I have in mind it is not the purpose to have a part of a colony. We want a full colony, all the bees one queen will produce, and we want them to stay in one hive clear through the flow. It may now be asked how large a colony we may expect to have in this way, considering the nature of the bees.

It has been my observation that a colony is most likely to swarm about the time, or very soon after, the bees have reached their maximum breeding capacity, every thing else being favorable. If this is right, a colony or strain that reached the maximum breeding early in the season would be that much sooner past the swarming period; and if this earlier part of the season were less favorable for swarming, owing to certain weather conditions, then there would be less tendency to swarm on the part of this kind of strain.

Then, again, many think that an over-supply of young bees in proportion to the brood and honey to be cared for is likely to be a prolific source of swarming. If a strain reaches its maximum breeding early, say about the time of fruit bloom, then the dearth after fruit bloom discourages swarming, and so cuts down breeding that, when the main flow begins, there are plenty of old bees or fielders, yet no surplus of young, nor can there be for a month. Such a colony is just right for gathering and storing the most surplus, and is *not* in a condition to swarm. Is it not evident that, if one breeds a strain best suited to his "locality," other "manipulations" will be more effective, and the variation in all colonies be less marked? Of course, one should always take note of the variations of the seasons. If, at fruit bloom, conditions should be very favorable, increase might have to be made in order to prevent swarming. But the gain would come from the labor saved at the time of the main crop, and this saving could be applied in "keeping more bees" as well as in more surplus per hive.

Dunlap, Iowa.

DOOLITTLE METHOD OF SWARM CONTROL NOT A SUCCESS IN IDAHO

BY E. F. ATWATER

As soon as the essential features of the Doolittle method of swarm control in the production of comb honey had been published the writer gave the method a test in several yards, and that test has been repeated each season, although on a smaller number of colonies. We have no hesitation in saying that, if the method would give the results in this locality that it gives Mr. Doolittle in his own location, then it would be, in many ways, the ideal plan for out-yards and comb-honey production. But we find that far too many of the colonies shaken on the combs which had been above the excluder will swarm again in less than three weeks, resulting in poor super work,

and adding to the labor of swarm control. Only rarely does a colony treated by the Doolittle method prove superior to the average; and never, so far as the writer can remember, has such a colony proved the best in any yard. We even procured a breeding queen from Mr. Doolittle and requeened a number of colonies with her daughters, especially to test his method of swarm control; but even then the Doolittle system, with bees from Doolittle queens, has not been successful. The only favorable report that the writer has heard is from Mr. H. M. Weidner, of Payette, Idaho. We regret that the method has not fulfilled its promise, for we had hoped much from it.

We find that any system (natural or forced) of hiving swarms on combs does not give best results for the production of comb honey—owing, apparently, to the fact that the swarm is not satisfied. When we hive on foundation more energy is displayed, and a far smaller number of colonies will again attempt to swarm. We have tested some modifications of the Doolittle method—for instance, tubing the bees from the old brood-combs, as they hatch, into the new colony, desirable for a week at least to reinforce the colony with more bees.

Another difficulty is that in most parts of the arid West there is a marked reluctance on the part of the bees to carry up, into the combs above the excluder, any excess of honey in the brood-nest, until too late to give the queen sufficient room to lay. Even the Carniolans, least of all inclined to crowd the brood-nest, show this tendency to a marked degree if the excluder is used; while without the excluder there is no disposition to crowd out the queen in May or early June, before time for shaking. The Doolittle method does not give brood-room sufficient to prevent all colonies from getting the desire to swarm before the honey-flow unless an extra story of combs be given to the best colonies in May, so that the queen has access to the combs in more than one hive-body.

We have tried giving the queen the liberty of two hives of comb instead of confining her to one. Then when the proper time arrives we sort out the combs with little or no brood, and shake on them, which is more work, but which gives stronger swarms on the average, and with less danger of swarming before the flow. As before, however, too many seem not to realize that they have been swarmed, and must try it again. There is no question that, in nine cases out of ten, where we have used the Doolittle method, we could have secured

more profitable results if the bees had been shaken on foundation, and the combs above the excluder had been extracted. We therefore have no further use for the Doolittle method unless with a few colonies as an illustration to our students, and we await with interest the publication of a method which does not involve much uncertainty and the expenditure of a very large amount of labor.

Many of the former advocates of shaken swarming are now doing little or no shaking except of diseased colonies. They merely destroy cells, etc.; then if a colony persists in swarming they kill the queen, cut out cells, and, about nine days later, give them or leave them one cell. To tell the truth, there is as yet no method publicly known for controlling swarming in out-yards run for comb honey that is really satisfactory and adapted to a large business.

We have a plan which we use very largely, which gives good results; but it is quite laborious when several yards must be handled. Upon the opening of the flow, which is the signal for most of the swarming here, we shake into a new hive, with full sheets of wired foundation in the frames, three-fourths of the bees from two colonies. This plan gives powerful colonies, good for some fine work, and secures comb honey if there is a flow. But for the past few seasons, with large yards of 200 upward, too many such swarms will come out again once or twice, before settling down to work; and if a comb of brood is given when shaking, the bees will start unnumbered queen-cells upon it, and refuse to stay until the brood is removed, as described by L. Stachelhausen several years ago. It is possible that this disinclination to stay hived may be due to the use of full sheets of foundation, as this has been spoken of by several writers; but the condition was not so apparent when our yards were smaller. If the dividing of the cluster by the full sheets of foundation be the reason for the discontent, we can obviate it by giving an empty body below the swarm for two or three days. We will test the matter thoroughly this coming season.

If increase is desired we may give a queen or a cell to the shaken colony (one of the old brood-nest), or pile several such bodies of comb above the excluder on some weak colony, and use for increase when the brood is sealed, or leave them to be filled with honey for extracting. The writer has several times had hundreds of such hives of sealed brood piled above excluders, awaiting the arrival of queens from the South,

only to lose the opportunity to get a large increase by the failure of the queens to arrive until too late.

Here, if we can get a layer into a hive of brood or on a few frames of brood, in early June, we have a colony as good as the best for our second flow. If, on the other hand, we must wait and allow them to mate a queen, then they will be so much weaker when the second flow comes than they would have been if they had had a layer at the proper time, that they will often store little or no surplus from that flow.

Where are the queen-breeders who will give a bond to send queens at the time they have agreed to do so?

Meridian, Idaho.

MAKING INCREASE BY SHAKING BEES FROM STRONG COLONIES INTO SWARM BOXES

BY I. B. ELLIS

Assuming, first, that there are at least two bee-yards two or more miles apart, and that you want to double your number of colonies, you should first go to a tinner and have a funnel made about eighteen inches across the top, with a two-inch hole at the bottom. Next make about twenty swarm-boxes. I make mine by taking new red-wood shakes and cutting them in two in the middle for the sides; and for the ends I use blocks $\frac{7}{8}$ thick by 6 inches square, nailing all together. Cutting out nearly all of one side, I tack on a screen, and bore a two-inch hole in one end of the swarm-box to hold the funnel.

You are now ready to go to your apiaries and make the increase. It is necessary to build up the yards early in the spring by artificial feeding until the yield of honey begins from the early flowers. At yard No. 1, first go to a strong colony and find the queen; then set aside the comb containing her. Have the helper hold the funnel in the swarm-box while you shake two combs with adhering bees down into the funnel. Give them a quick shake, and the bees will go rattling down into the swarm-box. Shut the hive and go to the next strong colony, and take out two combs of bees as before, being careful not to get the queen. Shake the bees into the funnel as before. When visiting the next colony take out only one frame of bees (it does not need to be quite as strong), and shake them into the funnel. I like to take out five frames of bees and confine them in a swarm-box, as it makes a nice little colony. Now take out the funnel and slip the slide. Proceed in the same way until the twenty swarm-boxes are filled.

If you are quick and have good luck in finding queens, and work fast, you should have the twenty boxes of bees in five or six hours, or about 3 P. M.

Now take a laying queen and drop her right down in among the bees, one for every swarm-box. Give the queen-cage a little shake, and out she goes. It is better to buy your queens if you can get them; but if not, the queens already raised which you have on hand may be used.

Going to yard No. 2 we arrive by 4 P. M., taking the boxes of bees. Put them in the shade, and then arrange twenty hives. Set them where you want them to remain, and go to the supers of the old colonies, and take out four frames of honey and comb, selecting combs about half full of honey, and one sheet of foundation, putting the sheet of foundation next to the outside comb. When the hives are all set, and ready for the swarms, slip the slides of the swarm-boxes, and shake the bees in front of the hives (one box for each hive). It is just about sundown by the time you are busy shaking the bees out of the boxes in front of the hives and seeing that the bees go in.

The next morning go through the same process at yard No. 2 that you did at No. 1, taking the funnel and swarming-boxes and shaking the bees in till the twenty boxes are full. Drop in twenty laying queens, and return to yard No. 1, and fix the hives in the positions in which they are to remain. Take four sheets of honey, partly full, from the super of the old colony, and one sheet of foundation for each hive, putting the sheet of foundation next to the outside comb.

Now it is getting late, and we run the twenty swarms into our twenty hives the same as we did the evening before. We keep this up until we get all the supers of honey used up, or as much increase as we want.

The old colonies will stand a draw of a couple of sheets of bees again in seven or eight days, and possibly more. It all depends on the condition of the weather, and how fast the brood is hatching. One has to judge by the looks of things. Draw from the old colonies for the purpose of swarm prevention till the honey flow is on in earnest, and supply foundation for both the *old colonies* and the *new swarms*.

The third week the swarms are storing more honey than the old colonies that we drew from. Last year I started with 88 colonies in the sage district of California, having also 200 supers of combs from which the bees died the year before. I in-

creased to 210 colonies, and took 20,750 pounds of extracted honey.

St. David, Ariz.

PROPER PACKING AND GRADING

BY LOUIS SCHOLL

There is at present no other matter of so much importance to the Texas beekeeper, and the entire South, for that matter. There exist, at the present time, no definite rules that govern the packing and weight of the various packages of the honey of the South, as regards what might be termed a standard by which to go absolutely, both as to the manner in which the various sizes of cans and pails used shall be filled, and as to the weight of honey they should hold.

There seems to be quite a diversity of opinion among even our leading beekeepers; and as long as this continues we may expect trouble from time to time with the buyers of our products. While some claim we ought to let the weight include container with the contents in the selling weight, others furnish a full net-weight package. The latter seems far the better way, and one that can be easily arranged, and at the same time will be more in conformity with the present regulations of the pure-food laws. But if some of us are doing this, all should do likewise; for it makes quite a difference with a large crop whether we are *compelled* to furnish full net weight of honey as against those who include the containers as part of the weight.

Another most important item, and one that needs a lot of "clubbing," is that of packing dark off-grade honey in with fine white comb honey. Often such stuff is so far "off" that it is unfit to eat, and hence the practice should not be permitted to go on.

The matter of the proper amount of comb honey in proportion to extracted honey in packing "bulk comb honey" needs some adjustment before our next packing season rolls around. While some beekeepers, to be honest, put a large amount of comb honey in the cans, and less extracted, others vary these amounts to a great extent, and just as honestly. The trouble is, we have no real standard to go by, and such should be provided.

We have a great deal of trouble also when it comes to the prices of honey. There are quite a number of beekeepers who believe in keeping the price up in proportion to the supply and demand, and in relation to other commodity prices, so far as practicable. But this often—yea, very often indeed—works against them in the prompt dispos-

al of their products. This is because there is such a difference in the price at which various beekeepers sell their honey that the lower prices prevent others selling their honey.

A better organization of the beekeepers, or even a simple "getting together" and discussing these various questions, would bring about an improvement over the present-day situation.

New Braunfels, Texas.

A FURTHER NOTE OF WARNING AGAINST SPRAYING WHILE IN BLOOM

BY PROF. N. E. SHAW,
State Entomologist of Ohio.

The time of year is now at hand when the spraying campaign is started against the many pests affecting our fruit-trees. A word of caution should be given for the benefit of those who disregard the advice of authorities and spray their trees while in full bloom. There is nothing to gain by the application of spray at this time, but, on the other hand, positive injury is sure to result to the vital parts of the flower, and likewise to bees and other insects which are so necessary to the proper development of the fruit.

For a time the correctness of reports from correspondents (that many orchardists sprayed their trees while they were in full bloom) was doubted. During the past year reports of this kind were investigated by inspectors, and it was found that the practice was being followed to a considerable extent. A few of the offenders, strange to say, are some of our largest fruit-growers whose spraying equipment is not sufficient for their orchard acreage; and in order to spray all of their trees before the closing of the blossom end of the apple, they commence operations while the trees are in full bloom.

Another class of offenders is composed of those who do commercial spraying for small orchardists. Their object, of course, is to extend their work over as long a period as possible, and many of them spray right through the blooming period, regardless of the condition of the blossoms. Their employers are usually ignorant of the harm done by the practice, and make no stipulation as to the time during which the work must be performed.

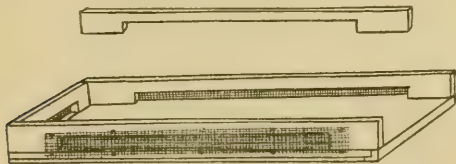
This Department will make every effort possible to discourage this harmful practice, and asks the co-operation of beekeepers in reporting all instances of this kind that come under their observation.

Ohio Department of Agriculture.

Heads of Grain from Different Fields

A Bottom-board that Does Away with Sulking Bees

I can not remember now whether it was Dr. Miller or Mr. Doolittle who advocated putting blocks under the hive in summer to give bottom ventilation. I am quite sure that it is Dr. Miller who uses the bottom-board with the deep space under the frames, with the idea of giving more ventilation than can be secured by means of the ordinary bottom-board. That two such successful beekeepers find it necessary to have more ventilation is pretty sure evidence that there is something lacking in the standard make of bottom-boards. In my own experience as a beekeeper I have found that, when using the regular make of bottom-boards, it is almost impossible to crowd the bees sufficiently to get results in comb honey without their sulking and hanging out on the front of the hive. Abundant bottom ventilation has always been in accordance with my idea, but I do not like the plan of the blocks very well for more reasons than one. The chief reason was that, when the hive was set on these blocks, it gave the bees an entrance from every side of the hive, and I can't say that I enjoy opening a hive when the bees in about every third hive are going to pile out and sting a row all around my ankles.



This bottom-board is made just like the ordinary reversible bottom-board, except that, instead of the deep entrance being only $\frac{3}{8}$ or one inch deep, mine is two inches deep. Then an opening is made on each side and at the back, one inch deep, extending each way to within three inches of the corner. This opening is covered with wire cloth, which compels the bees to go to the regular entrance, and keeps them away from my feet and legs. At the same time they have a free ventilation from all sides; and after using this bottom two years (last year on fifty colonies) I have yet to see a single colony hanging out over one of them. This certainly must have a decided influence on the swarming problem.

These bottoms are ideal for moving bees, for all you have to do is nail up the entrance tight, and the wire-cloth-covered holes will give abundant ventilation. Then, again, when wintering in the cellar the bottoms can be left on, and still there will be almost as free a ventilation as if there were no bottom at all. When the weather is too cool for the wide entrance the reverse side is just the same as the shallow entrance on the regular bottom-boards. The drawings will illustrate the construction.

Barryton, Mich.

LEON C. WHEELER.

A Modification of the Alexander Method of Increase

Will you be kind enough to state objections to the following modified plan of Alexander for increase and prevention of swarming? Select a strong colony with a quantity of brood in all stages of development, before the clover flow starts, or, preferably, about one month before the clover flow. Look through the colony carefully, and remove every queen-cell. Have a new hive ready with frames of foundation, but with one place left for a frame of brood. Place the new hive on a stand near the first, and then remove a nice frame of brood from the old

hive and place it in the center of the new hive. Find the queen, and introduce her into the new hive (if possible, select the frame on which the queen is found). Now remove the old hive to a new stand some distance away, and place the new hive on the old stand. A queen may now be introduced into the old hive; or would it be better to leave one queen-cell if one is present? Would the delay of 16 days, caused by raising a queen, be a serious handicap to the colony for handling the honeyflow?

Decatur, Ga.

H. B. ARBUCKLE.

[As many of our readers have, perhaps, forgotten the original Alexander plan, we are giving it here.—ED.]

When your colonies are nearly full enough to swarm naturally, and you wish to divide them so as to make two from one, go to the colony you wish to divide; lift it from its stand and put in its place a hive containing frames of comb or foundation, the same as you would put the swarm in, providing it had just swarmed. Now remove the center comb from this new hive, and put in its place a frame of brood from the old hive, and be sure to find the queen and put her on this frame of brood in the new hive; also look it over very carefully to see that it contains no eggs nor larvæ in any queen-cells. If it does, destroy them. Now put a queen-excluding honey-board on top of this new hive that contains the queen and frame of brood with their empty combs, then set the full queenless colony over the excluder; next put in the empty comb or frame of foundation taken from the new hive, and close the upper hive except the entrance they have through the excluder into the hive below. Leave them in this way about five days, then look over the combs carefully, and destroy any larvæ you may find in the queen-cells unless they are of a good strain of bees that you care to breed from, for they frequently start the rearing of queens above the excluder very soon after their queen was placed below the excluder. If so, you had better separate them at once; but if they have not started any queen-cells above, then leave them together ten or eleven days, during which time the queen will get a fine lot of brood started in the lower hive, and every egg and particle of larva that was in the old hive on top will have matured, so it will be capped over and saved; then separate them, putting the old hive on a new stand. It will then be full of young bees mostly, and capped brood, and in about twenty-four hours they will accept a ripe cell, a virgin, or laying queen, as they will then realize that they are hopelessly queenless. I would advise you to give them a laying queen, as I never like to keep my full colonies for even a day longer without a laying queen than I can help.

In this way you secure two strong colonies from one, without losing a particle of brood or checking the laying of this queen; and with me it almost wholly prevents swarming. This is the way we have made our increase for several years, and we like it much better than any other method we ever tried. In doing so we keep all our colonies strong during the whole summer, and it is the strong colonies that count in giving us our surplus.

The mere fact of having a large number of colonies does not amount to much unless they are strong in bees and are well cared for at all times. This is a fact that many have sadly overlooked; and when the season comes to a close, giving them a small surplus, they feel disappointed and lay the fault on many things that have had but little to do with their failure.

[Your modification of the Alexander method of increase is not as good as the original Alexander plan, for this reason: You remove the old hive to the new stand at the time you make the division of the colony, while Mr. Alexander puts the old hive

over the new one with perforated zinc between. The object of this is to save the young brood that is unsealed. In five days, as Mr. Alexander directs, all the brood will have been sealed up, and quite a number of young bees will have hatched out. At that time the upper story with its young bees with nothing but sealed brood can be put on another stand much more safely than it can be done at the very beginning when there is unsealed brood and less of young bees.—ED.]

Feeding During a Time of Making Increase

Dr. C. C. Miller:—Please let me know whether the method of applying the Alexander feeder at the time of making increase, as per your article in *GLEANINGS*, May 1, 1912, p. 266, and feeding a pint of syrup every night for 14 nights, so that the increase will rush things for the basswood flow and buckwheat would apply to conditions similar to those given on p. 279, May 1, 1912. Do you approve of the use of the Alexander feed in cases of this kind, as the cost of syrup will be only about 30 cts. per colony? Will it pay to spend this much in the above cases?

Canastota, N. Y.

WM. P. FRITZ.

If I should feed in the way you suggest, I don't believe it would make enough difference to pay for the trouble, if, indeed, it would make any difference at all; for at the time the increase would be made the bees would be gathering enough and more than enough to supply the brood, and extra feeding would not increase the laying of the queen. There are, however, a few localities where it might pay well. There may be particular seasons in almost any locality where feeding would pay big. In the first half of June I expect my bees to be doing a land-office business if the crop is to amount to anything that year; and it would be foolish for me to feed at that time. But one year there was a dearth in June, and before I realized the situation the bees were carrying out the white skins of larvae from which they had sucked the juices. I could well have afforded a dollar a pound for sugar to feed at that time. Now, suppose a locality where the weather is favorable during the time you would want increase, but there was nothing from which stores could be gathered, while a heavy flow might occur later on. In that case it would pay well to feed, so as not to have any break in brood-rearing.

The gist of the whole matter is this: If bees are already having all the brood they can cover, feeding will not increase it. If they are already gathering abundance of stores for brood-rearing, feeding will not hasten the building-up; but if bees are not gathering enough to keep up brood-rearing, then feeding may pay well.

Marengo, Ill.

C. C. MILLER.

Spring Uniting

In May of last year my bees were near the point of starvation; and as I did not see any prospect ahead for honey I united a part of my 55 colonies so that there were only 38. I intended to keep on uniting until I had only 25, as I did not want to have to feed so many; but about May 15 the colonies seemed to be so strong that I thought I would wait a few days and then unite more of them if I desired. About the 20th they began bringing in some honey, and they kept at work. Up to that time I had had three or four swarms. That is all I had that season. I stacked up supers, three or four to each colony, and when the season was over I found I had sold \$121 worth of comb honey near home, and I had besides 22 hive-bodies full, and many unfinished sections.

I will describe my way of uniting. If A and B are to be united, A being the stronger of the two, I lift A from its stand; set B in place of it; then

remove the cover from B, blow in a little smoke, and finally I smoke a little at the entrance of A. Then I loosen the bottom-board of A and set it on top of B. I do this when the bees are flying freely. If there is any choice in the queens, I kill the undesirable one; but if not, I let them alone. Sometimes the two remain together; but I have never known more than two instances when the queens lived together all winter.

Late in the fall the bees will usually be in the upper hive; and if the colony is not too strong I separate the two hives and give the best set of combs to the colony.

Fremont, Mo.

MRS. ALMEDA ELLIS.

Transferring without Drumming Bees

I notice in *GLEANINGS* for March 1, pages 154 and 155, illustrations of transferring which seem to me to be altogether out of date; for, in the first place, drumming out bees is quite an unnecessary waste of time. The quickest and easiest way of transferring is to turn the hive upside down, fasten a box in a slanting position over the bottom, of course having used your smoker first. Then with a hammer and hatchet split off the side that has fewest combs attached. Smoke back the bees; cut out the first comb; put the dry comb into one hive, and comb with honey into another; smoke the bees off the second comb, and repeat, cutting out any comb containing brood, and so on. By the time the last comb is out the bees will be in the top box, and the queen either found in cutting out combs or remaining in the old gum.

Having transferred hundreds of gums in this way, I have found it to be the quickest and easiest way. Before I fasten on the small box I note particularly how the combs are fastened to the gum, and choose the side having the fewer fastened to it; for the side to be opened, there would not, in nine cases out of ten, be a quarter of the flying and loose bees as there are shown in the illustration. Turned upside down, the combs are often found attached to the sides of the hives.

I don't say any thing about the crossway sticks, as they are very easily gotten rid of.

Allenville, Ala., March 10.

H. F. HART.

[An expert can transfer from a box hive quicker by the method described by our correspondent than by the process of first drumming the bees out of the hive. The average beginner, or, rather, the person who tries transferring from a box hive the first time, will succeed better—that is, he will have less fear of stings if he drums the bees out first. Years ago, when the writer was learning his A B C's he found it more practicable to transfer as described by Mr. Hart; but at that time we had bought some 25 or 30 box hives, and we transferred them all in two days.—ED.]

Giving Room Beneath Instead of on Top

When the bees need room in the spring, having been wintered in two 5%-inch bodies, would it not be a good plan to put the third one under the other two and allow the top one to become an extracting-super, when it could be thoroughly cleaned, as well as the frames, of all propolis, and repaired if necessary? In this way one half of the hive would be cleaned every year. The bees, I believe, would be inclined to store the honey above, and allow the brood-nest to be extended downward; and, furthermore, the loss of heat would not be so great with the empty body below as it would be if placed above the brood.

H. C. DUNN.

East McKeessport, Pa., March 19.

[The proposed plan of putting the third shallow brood-chamber under the other two is an excellent idea, especially at the beginning of the season. It is

better to give room at certain seasons of the year in this way than to put it at the top. The only objection to it is that there will be considerable brood reared in the top story; and, later on in the season, you would have to reverse the process by putting the empties on top and the perforated zinc between the brood-nest proper, whether there would be one brood section or two, and the extracting-super above.—ED.]

Apigrams from the Southeast; Stop! Read! Remember!

Give all colonies and every comb a thorough examination this spring.

Notice (and make a note of) the condition of every brood-nest, and make a second examination with equal attention, in two or three weeks, so that every queen whose work is inferior may be replaced, for a poor queen means a profitless colony.

Remove all combs that contain more than a dozen or so drone-cells, and melt up for wax; for many unnecessary drones are a heavy tax on the profits.

Remove all combs that have dry mold in the wax. If you don't, the bees will, and they will put drone comb in its place. If you remove it first, you profit in two ways—you save it for wax and you save their labor, which labor consumes honey and bee life.

Permanent enthusiasm is maintained mainly by profits, and profits are secured mainly by hard work and head work suitably mixed; so if you wish to retain the joy of enthusiasm in your beekeeping, get busy on the mixture.

Get two kinds of wax-extractors in your apiary, if you have not already done so—a sun wax-extractor for scraps, and a wax-press of some good kind; for in warm regions it pays much better to melt all defective comb than to patch it, for wax is “quick money.”

When you walk through your apiary, have seeing eyes and hearing ears; for by entrance appearances may the inward condition of your colonies be known, and much hard labor be saved thereby.

It is not the bees that buzz the loudest that make the most honey.

Good seasons come both singly and in flocks; ditto with poor ones; so if you get a succession of good crops don't felicitate yourself on your cleverness. The lean flock may be even now at your door, to tax your prudence and endurance to the limit.

Rejoice in the bountiful years, and let the bees teach you to lay by for the poor years, when you shall need to step softly over the graves of “blasted hopes.”

Mt. Dora, Fla.

G. J. V.

The Capriciousness of Swarms

Hiving swarms was a difficult matter for us last summer. The bees seemed undecided as to what they wanted to do, and would come out, settle, and then either move to another place or do some other queer stunt. Only one swarm, the first, was reasonable in its actions. It settled on a thornbush. I bent the bush down, gave it a blow, and the bees crawled into their new hive as calmly as the animals walked into Noah's ark.

The next swarm settled on the top of a tall young maple. I climbed up a ladder and cut off the limb while the hired men caught it on a forked pole and let it down in front of the new hive. The bees went in. But after that our troubles began.

A fine big swarm came off when I was away from home. It settled all right, and then the hired men sat down to dinner, intending to hive it after dinner. But meanwhile it soared away through the sky, and was lost to sight, though to memory dear.

The next time a swarm came off I was at home; but I might as well have been away. It alighted on

a low walnut; but while I was putting the hive in position, there was a rumble of thunder. The bees became frightened, and fled back to their hive. Then if I had only had a queen-trap I could at least have saved the bees. They issued the next day with their queen, and took refuge in the tall timber, and were lost.

I keep bees for the purpose of pollinating my orchards, and to them, in part, I owe my immense crop of 8000 bushels of red juicy apples which I gathered last year.

New Wilmington, Pa.

J. C. M. JOHNSTON.

Dropping a Swarm from a Tree into a Hive

I had a swarm cluster in the top of a large elm-tree. As I could not reach the limb I climbed the tree, and, with a cutter on the end of a long pole, cut off the branch and let it fall to the ground, bees and all, having placed the hive at about the place where I thought the bees would fall. The limb struck the ground within three feet of the hive, and the bees all ran in.

Long Neck Sta., L. I.

E. GRISWOLD.

[This plan you mention would, undoubtedly, be a good expedient in the emergency you mention; but ordinarily, if it is possible to reach the limb it is a little safer to let it down with a light rope after it is cut off. If you missed your calculation as to where the limb would strike the ground so that you did not get the hive near enough; or if the limb struck any thing else on the way to the ground the bees would probably get away from you.—ED.]

An Easy Way to Fill Combs

Last spring I had to feed my bees, and desired to do so by giving them sugar-water in combs. I filled my fountain-syringe bag, and the thin stream directed at the cells caused hardly any drip. The air was driven from the cells, and had plenty of room to escape. It was far beyond the dipper method or the immersion way.

Iowa.

J. GAUS.

[The plan described is perfectly feasible. While we have not tried it, we know that one can secure filled combs in the manner described, with a good deal less spatter and daub.—ED.]

Cells Filled with Pollen in Aspinwall Hive

I have tried two Aspinwall hives this season; but with my management they were not especially successful. There was no swarming, but I had some bulged sections, a few thin ones, and nearly a third of the sections next to the brood-chamber contained one or more cells of pollen. The queens also went above, and a number of sections contained brood. In our regular hives, pollen is never found, and brood is rare in comb-honey supers. These hives may work better under other conditions and management. I shall continue the trial, and hope for better results.

Fair Oaks, Cal.

E. L. SECHRIST.

416 Pounds from a 24-Year-old Colony

Our last exploit was to get 416 lbs. of honey from the only colony of bees we had, and then have the colony live 24 years in the same hive. The hive actually rotted away from the bees.

Galva, Ill., March 13.

LLOYD Z. JONES.

\$17 Worth of Comb Honey from One Colony

With reference to keeping down increase and running for comb honey, I would say that I have one colony that produced \$17.20 worth of section honey, and cast one swarm.

Sunbury, Pa.

JOHN DAVIS.

Our Homes

A. I. ROOT

Behold the fowls of the air; for they sow not, neither do they reap, nor gather into barns; yet your heavenly Father feedeth them. Are ye not much better than they? Which of you by taking thought can add one cubit unto his stature? And why take ye thought for raiment? Consider the lilies of the field, how they grow: they toil not, neither do they spin; and yet I say unto you that even Solomon in all his glory was not arrayed like one of these. Wherefore, if God so clothe the grass of the field, which to-day is, and to-morrow is cast into the oven, shall he not much more clothe you, O ye of little faith? Therefore take no thought saying, What shall we eat? or, What shall we drink? or, Wherewithal shall we be clothed? For after all these things do the Gentiles seek; for your heavenly Father knoweth that ye have need of all these things.—MATTHEW 6:26-32.

Mrs. Root and I have now been here in our Florida home close on to six months. Neither of us has had a sick day, and I myself have scarcely had a pain or ache. Neither of us has had any thing worth mentioning in the way of a cold, and nothing at all like grip that has again been so prevalent throughout the cold North. Other winters we have had more or less of cold and grip, and similar troubles along that line. Now, then, can I give any of you any suggestions in the way of *getting* well and *keeping* well—especially in the winter time or in cold damp weather? T. B. Terry has lately been having a good deal to say in regard to having open airy rooms, and getting oneself *hardened* or acclimated to cool weather without being excessively bundled up. Mrs. Root has also been for years past urging that I should get rid of my fur cap and the unusual amount of clothing that I felt that I must wear in order to avoid "taking cold." She has over and over again urged that, if I would take proper care and precautions, I could get tough so that I could stand a little exposure without having neuralgia, rheumatic pains and aches, and things of that sort. Well, early in November I began getting rid of my fur cap, endeavoring to keep warm by vigorous exercise in the open air without so much clothing. In place of wearing an overcoat when it was cold, by Ernest's advice I got me a woolen sweater that could be easily thrown off or put on as circumstances or the weather seemed to demand; and right here I want to say that that woolen sweater has been one of the greatest helps and comforts of any thing I ever got hold of. Well, now, let us go back a little.

The first time I took off my coat and went to work in my shirtsleeves, even down here in Florida, the consequence was a stiff neck. Most of you know what that is with-

out my explaining. I began to say that I couldn't stand it—that I was too old, and that my circulation was too poor; but Mrs. Root urged that, if I would keep trying, pretty soon I would get toughened to it so I could get along without a coat or without a sweater. Well, the next day I tried taking off my coat again; but, as before, the consequence was a stiff neck, but I was obliged to admit that it wasn't quite as bad as the day before. The third day there was very little of it; and after that the stiff neck disappeared entirely. I went on with my experiments along that line, and not only discarded my coat, but after a time my vest, then put on lighter union underwear than I had been in the habit of using, and finally I went out and worked hour after hour with my coat and vest off and my sleeves rolled up, my underwear turned back, and not only my neck but my chest exposed to the sun and air and the weather. I also laid off my woolen stockings, and put on gradually some of the thinnest cotton; and of late, during February and March, I have been going barefooted through the middle of the day; and, to tell the truth, while I dictate this to the dictaphone I am sitting down here barefooted, bareheaded, with my collar turned back just as I have been describing. The fact that I could get along and be comfortable and happy with so little clothing has really given me a new lease of life. I enjoy my work and my meals, and I enjoy reading my books and papers after I have been out working in the ground or out with the ducks and the chickens. I firmly believe that we as a people have been wearing more heavy clothing, both men and women, than God intended we should. Aye, further, I am satisfied that many of us might live many years longer, and in more comfort, if we could only convince ourselves that it is possible to wear *less clothing*, and clothing that permits the air to circulate all over our bodies. I believe history tells us that in one of the islands in the seas they discovered a race of people that went entirely naked: but when these people were civilized and Christianized, and taught to wear clothing like other people, the race gradually lost in vitality, and threatened to become extinct unless they could be allowed to go back to their old ways and habits of being out in the open air with scarcely a rag of clothing to protect them or to look decent and civilized. Furthermore, it has lately been discovered that roop and a host

of other diseases that afflict chickens come about just because they are shut up too close and do not have enough air. "Killed with kindness" expresses it exactly. I am inclined to think that many human beings, the precious little babies included, *have* been killed with too much kindness and too much care to protect them from this beautiful, bright, invigorating outdoor air. In saying this, however, I do not want it to be understood that I mean to ignore the effects of draft or sudden exposure to weather without proper protection. I can't understand why it is myself; but I know this—that, if I sit down inside of the house with the doors and windows all open, there is danger of a draft that may give me a cold; whereas if I were to go right out in the open air, right in the very breeze that seemed to hurt me before, the wind causes little or no inconvenience. There is something peculiar about the draft of air that comes in and out through openings, such as doors and windows.

I read of a hunter who said that, while he was out camping in the woods, he was perfectly well—hadn't an ache or pain, no touch of rheumatism nor any thing of that sort. When he got back to civilization, and slept in the house, his old troubles all came back. Why is it?

Let me now go back to the matter of clothing. For years past—in fact, I can hardly remember the time when I didn't wear a starched shirt with white bosom and starched collar to match. I think that, while up in the "cabin in the woods," in Northern Michigan, I did for a time adopt what they called then a calico shirt. Late years it has been that starched front, so impervious to wear winter and summer—as long, in fact, as I can remember. During the past winter, however, I have ceased patronizing the laundry. Our oldest daughter paid us a visit, and she and Mrs. Root decided that it was too bad that I should go up town looking as I did, and they finally found some light summer shirts, so very thin that I scarcely knew I had any on at all, and which made me look a little more decent and like other people. And, besides, if I find this obstructing the air and breeze and sun too much I can unbutton it and throw it back without very much trouble. One of the most beautiful pieces of modern statuary I ever saw in my life—at least one that I have looked at and admired as much as or more than any other—is in our Medina cemetery. It pictures one of the old pioneer wood-choppers who cut down the great trees in Ohio, and established homes and colonies. This wood-chopper stands on a log, ax in one hand, with his hat off and

head thrown back, collar unbuttoned and turned back so that he exposes fully to view the muscles of his neck and chest. This athletic wood-chopper is in the full prime of life, and I should say from the looks of the picture that he is also enjoying such a life as God intended he should have out in the open woods, and taking the best exercise that every one of God's children should take to enjoy fully the gift of a human life to live. Before sitting down to my dictaphone I had been out in the lot with my colored man, Wesley, spading up the mellow sandy soil in order to make place for more of that five bushels of dash-eens that I have told you about. Of course I perspired freely; and after working an hour or two I enjoyed a good drink of water more than I can tell you. During the past winter, especially along toward spring, there has been more complaint around here of the "redbug" than usual, and I myself have had some of the "biggest doses" of "redbug poison," I think, that I ever had before since I have been wintering in Florida. Well, one day I asked Wesley if the redbug didn't trouble him. His reply was, "Mr. Root, the redbug never troubled anybody—at least, they don't trouble anybody very much when he sweats profusely. The sweating drowns them out." Since I have been helping Wesley spade up the ground so as to get into a brisk profuse perspiration the redbug poison seems to have let up almost completely. "By the sweat of thy brow shalt thou eat thy bread." The women-folks of our land seem to have caught on to what I am suggesting pretty well, to the full; but if I understand it, it is because of the fashion and not because it gives them health, strength, or vigor. Well, I am very glad to see them get along with lighter and thinner clothing, and clothing of less weight; but it keeps occurring to me that, since this new style of dress was adopted, if it were worn more at home instead of out on the streets it might be better, all things considered, especially for the growing boys and men who do not always look on women in the new attire as they would have *all men* look at their own wives, sisters, and mothers. If I am correct, Terry says that he wears no underclothing except when he goes away from home. When we are outdoors in the field in the tropic or semi-tropic climate I would let the underclothing be pretty much *all* the clothing that is worn. When we go to town, of course we ought to get fixed up a little more decent and a little more presentable. When we go to church on God's holy sabbath, of course we want to look at least respectable. Even *then* I do not believe, however, that

it is incumbent on us to wear the old style of stiff starched shirt fronts. In our present church we have a Bible class of elderly people who sometimes number as many as fifty or sixty. Last Sunday I took pains to notice, and scarcely a man wore a shirt with a stiff starched front.

Now I want to say a word along the same line in regard to the care of the feet. For years I have been troubled with corns, and it has taken a great amount of my time to apply corn remedies, or to provide myself with a keen sharp knife and cut away the troublesome accumulation; and especially during hot weather my feet get hot and uncomfortable. Last summer I told Mrs. Root that I should have to go barefooted or wear some very light women's cloth shoes. But she vigorously objects to this, especially when genteel people want to see A. I. Root; and, by the way, that reminds me that one day down in Florida when I had discarded my shirt, cap, and every thing but my light union underwear and pants, I was out barefooted hoeing my potatoes, when a whole load of ladies and gentlemen who took or read GLEANINGS called to see me. These were people of wealth and culture. When I undertook to apologize, the leader of the party said that was just the way he did at home himself; and I found out afterward that he was a man of large means. Well, when Mrs. Root scolded about my going barefooted, even in the presence of company, I tried at the shoestores in Bradentown to get some of the thin-cloth ladies' shoes. Among the dealers one who came from the North explained that there was no call for any thing of that kind in the South; and when I told him about the troubles with my feet he brought out some Florida shoes. A pair of these shoes are now on my feet as I dictate these lines. There are 21 oblong openings in the upper part of the shoe. In fact, one can look right through the shoe and see the stocking feet. Some of the openings come right above where my most troublesome corns used to be located. Let me digress a little.

Years ago one of my feet became so sore that I was pretty nearly crippled. I went to our family doctor; he said the trouble arose from a *lack of ventilation*. He told me to get an old shoe, and cut some slits through the upper part so as to let plenty of air get in clear around the sore spot, and then Nature would perform a cure without any drugs or medicines; and I used to go to church with that same mutilated shoe. Well, these shoes I found in Florida were made that way, and the openings I have mentioned are disposed so as to be ornamental rather than otherwise. I do not

know whether this sort of shoe is for sale here in the North or not; but it certainly ought to be in hot weather.

Let us now consider our text, or string of texts, a little in closing. The dear Savior exhorted us to beware of thinking too much about what we should "put on;" and I am sure he would not approve for one moment the expensive clothing that is now worn by both men and women who *think* they can afford it. I am not posted in regard to women's dress; but I am told that single garments frequently cost more than a hundred dollars. On our trip home a lady who sat next to us told about a woman in Florida who paid \$600 a week for board and lodging—almost \$100 a day. Her attire was after the same fashion. Our text admonishes us in these words:

"Why take ye thought for raiment?" And, again, "If God so clothe the grass of the field . . . shall he not much more clothe you, O ye of little faith?" We as a people have not only been "overfed," as Terry tells us, but we have many of us been *overclothed*. In fact, I have been overclothed; and until the present time I scarcely knew it. As nearly as I can gather from the Bible, among Oriental peoples in ancient times the clothing not only cost but little, but it gave access to an abundance of air over every part of the body; and not only air but sunshine as well.

I forgot to mention in the proper place that, when I let the Florida sun strike directly on my bare neck, shoulders, and breast, I at first got sunburnt; but in a little time my flesh got tanned and hardened, and it was just delicious to feel the sun and air where I had been having neuralgic pains. Many times when we had cold nights I found it necessary to put on my sweater, and bundle up pretty well. But I would often get busy and forget to dispense with this extra clothing when it was no longer needed. Then I would begin to have my old feelings of lassitude and bad circulation, accompanied with a lack of energy and enthusiasm; but when I got rid of the heavy clothing, and got hold of my hoe and went out in the garden, I felt a new lease of life. I was ready to sing praises, and give an old-fashioned Methodist shout over my "showers of blessings." At my age, when I begin to feel chilly toward sundown, or when the weather changes, of course the proper thing to do is to hunt up the discarded garments until I feel comfortable. The shoes I have mentioned, which I call my "cornerib" shoes, have very thick soles. This keeps the feet dry. Of course you must not get into the mud and water with such shoes, for that would soon result in

wet feet; but the soles are so thick that the feet are kept pretty well up out of the wet. Here is another point:

As we grow older we find our strength failing. Even a fair-sized Bible I sometimes feel to be quite a burden when I have to walk any distance. Well, now, many old people will find it a relief to get rid of every pound of clothing that can be dispensed with—yes, I might say every ounce. When I am going to take a considerable walk, I take my heaviest pocketknife out of my pocket; and if I have any silver dollars I lay them aside—at least as many of them as I shall not need. Young people, full of muscle and strength, may not need these suggestions. There is a beautiful text which I feel will come in well here:

Let us lay aside every weight, and the sin which doth so easily beset us, and let us run with patience the race that is set before us.—HEB. 12:1.

I do not know much about the raiment the Savior wore; but from the pictures and other suggestions we gather, I conclude it was very simple, light in weight, not ex-

pensive, and gave him the full benefit of the air and sun, as I have mentioned. Just one word more about starched clothing:

It is certainly the wrong thing for me; and I hope to see the time when the fashion of making the clothing with starching and ironing will go out of fashion. With the attention that is now being given to this matter of health, there certainly ought to be a reform in clothing as well as in the food we eat. I am sure a style of raiment can be devised so that both men and women may look neat and tidy, and at the same time get the full benefit of both sun and air in the way I have described, especially in hot weather. May God help us to break away from foolish fashions when those same fashions interfere with our securing the best and most robust health. Therefore "take no thought, saying, What shall we eat? or, Wherewithal shall we be clothed?"

But seek ye first the kingdom of God and his righteousness, and all these things shall be added unto you."

Poultry Department

TREADING IN THE FOOTSTEPS WHERE GOD HAS TROD.

Some scientist has said he greatly enjoyed treading in the footsteps where God has trod, or thinking God's thoughts over after him, or something to that effect. If I have not got it exactly right, will some one please straighten me out? Well, lately I have greatly enjoyed treading in the footsteps where God has trod. Let me explain:

I told you last fall that I had prepared to have an electric incubator to run during the winter down here in Florida. Well, when I got here I found they hadn't got ready to give us a current for the whole twenty-four hours. They thought, however, that by the first of January they would be all ready; then it was put off until the first of February. Well, just a little before the first of February we had some cold, rainy, and dark days. The demand for light all day was so much that they finally put it on without giving me notice, as they had promised. When I found out that the current was on I hurried up and fixed the incubator. In order to get eggs enough, I put in part of them one day and part another. I know incubator manufacturers have, almost without exception, declared against such a course. I thought that, under the circumstances, I would risk doing so once more; but just mark right here—I am never going to try any more experi-

ments of *that* kind. They should all go in at the very same hour, and the temperature shall be kept right up from the start to 103 as nearly as I can make it. I want the incubator warmed up and adjusted before the eggs are put in, and then, as I have said, every egg shall go in at just such an hour. The reason is this: I want the chickens all hatched out at one time. If some of them are dragging twenty-four hours or more, there is sure to be trouble—at least that is my experience.

Well, every thing went along 'all right until the eggs began to pip, and one Sunday morning I got a telephone notice that the current would be cut off (in about an hour) all day Sunday. Had they given me notice long enough beforehand, so I could have lighted the lamp and warmed up my Buckeye incubator I wouldn't have cared so much about it; but just imagine the condition—chickens already beginning to pip the shell, the incubator perfectly cold, and a pretty cool morning at that, and on Sunday morning. I lighted my lamp and did every thing I could to warm up the Buckeye incubator quickly; but by the time I got it up to 95 the electric incubator was also just 95, and going down rapidly. The Buckeye, however, got up to 100, and the electric was down to 90, and I decided to make the change. Now, you know every incubator manufacturer, at least nearly all

of them, declare that the incubator *must not* be opened nor the eggs disturbed after they begin to hatch. Another thing, my electric incubator had 60 fertile eggs in it (I have explained before how I manage to keep my incubator full of fertile eggs), and the Buckeye held only 50. What should I do with the extra ten? Let me digress a little.

I have been all winter wanting some sitting hens; but my cross between Buttercups and white Leghorns have never offered to sit. I don't think I even heard a clucking hen until the first of February. Well, about January 1 I asked neighbor Rood if he didn't have a sitting hen he could spare me. He said he had two or three, and I was quite welcome to them. They were Rhode Island Red pullets; but he said he didn't believe I could make them sit after they were removed from their home across the way to our place. It turned out just as he said. I purchased at \$1.00 each three of these great big beautiful pullets that wanted to sit. He said he guessed 75 cents would be about the right price, but I remonstrated. I told him I couldn't think of taking his young pullets, just commencing to lay, at less than \$1.00. Well, true enough, when I got them over to my place, in spite of all the care I could take, not one of the three would sit. He said I might bring them back; but I told him they would want to sit again pretty soon, and so I preferred to keep them. Well, in about a week one after another began to lay, and gave us a goodly number of eggs; some of them every day, and some of them two eggs out of three days, until about the middle of February. Well, one of those Rhode Island Reds (a great big healthy motherly-looking hen) that very Sunday morning, just a little before brother Rood came over, this big fluffy hen was around "clucking." Just as I began to wonder what I should do with the extra eggs that wouldn't go in any kind of shape in the Buckeye incubator, I remembered this clucking Rhode Island Red; and on going over to the poultry-house, sure enough she was on her nest, and fighting furiously when I attempted to interfere with her. So I just took fifteen of those eggs that were ready to hatch and put them under her. I have so frequently taken eggs from sitting hens and put them in the incubator, and *vice versa*, that I didn't anticipate any trouble; and there wasn't any trouble here so far as the *hen* was concerned. The only trouble was this: She seemed to know (or God had told her) that, when she commenced to sit, the eggs should be rolled and turned; and not knowing, evidently, that these eggs were almost ready

to hatch, she kept on rolling and turning them when they should not have been rolled or turned at all. You know all of the incubator-makers say that we should stop turning the eggs on the eighteenth day. In times past, because I couldn't see any particular need of this, I had kept on turning them. You may know the result. Many of the eggs began to hatch when the opening the chick made was on the under side, and the liquid inside of the egg ran down and closed it up, and the chick suffocated. And now a great and wonderful truth began dawning upon my mind. The reason the manufacturers of incubators say we must not turn the eggs after the eighteenth day is because the sitting hen, after about the eighteenth day, entirely ceases from rolling and turning the eggs, and leaves them quiet the same side up until they hatch out. I ought to have remembered this, because once in times past I took some duck eggs that were nearly ready to hatch and put them under a hen that had been sitting only about a week. The consequence was, she rolled and tumbled those poor little ducklings when they were just getting their noses out of the shells until she killed nearly all of them.

Well, these three Rhode Island Red pullets have given me faith in the Rhode Island Reds. Before, I had never fancied them very much; but the sight of this hen that was clucking around preparing to sit Sunday morning, and had some chicks hatching out just twenty-four hours later, gave me faith. After this, when she took the chickens just hatched out in the incubator as soon as they could be safely removed without any objection, it gave me still more faith in the Rhode Island Reds. A cold rainy spell came on, perhaps the coldest we have had in Florida this winter, just about the time of my incubator trouble. Of the forty-eight that hatched, out of the forty-nine eggs that I have already told you about, there are something like half a dozen that might have died had it not been for this motherly sitting hen that was so perfectly willing to take any thing and brood it under her capacious wings, without any objection whatever. Let me explain.

We had two or three inches of rain during twenty-four or (possibly) forty-eight hours, during the middle of February. This is very unusual here in Florida, and almost unprecedented. Well, as all of my poultry-houses had perfectly dry sand inside on the floor, I hadn't as yet paid much attention to drainage. However, such a flood of water wet the floors of not only nearly all of my poultry-houses, but there

was quite a puddle of water in the brooder-house, right close up to the fireless brooder. They stood it pretty well until morning, when the strong and healthy ones were outside on a run, and the weaker ones had no warm place to stay. This is one of the troubles with the fireless brooder. The big motherly hen, in addition to about thirty chicks of her own, spread her big wings and feathers, and mothered every one of these that found it hard to keep warm in the fireless brooder. I tell you, a good motherly sitting hen that won't quarrel with her chickens, no matter whether they are white, black, or yellow, is a good thing to have. I feel just now like saying that the best brooder in the whole world (especially for the poultry-keeper who keeps chickens on only a small scale) is a good motherly sitting hen. When a chick that is not as strong as the rest begins to feel the need of warming up, the great natural brooder (the brooder that God made) is ready to welcome the poor little sufferer and warm up his back and ears and toes. Underneath her warm fluffy feathers he can stick out his little head and rejoice, and thank God for the haven of rest when it is so sorely needed. Yes, for it is a rest and a "refuge" indeed.

Another thing in favor of this kind of brooder is that chickens hatched in an incubator have to be not only taught to drink but they have to be taught to eat. Several times I have found it quite a little trouble to get brooder-hatched chicks to eat bread and milk. When the bread and milk was set down before them, they only looked at it and smelled of it; but after a motherly hen had taken a mouthful in her bill and held it out to them with the accompanying assurance of her voice, the chicks all gathered around, and the most greedy took it from her lips(?) and then when she picked up some more and offered it to them the same way, they began to catch on and began looking for something on the ground, or on the little wooden trough or dish used for their regular food. After she has had the little chicks for a week or ten days, *then* the fireless brooder is all right, especially if you are down here in Florida. The temperature, the coldest we have had this winter so far, is just an even 40 degrees here on our place.

SOMETHING ABOUT INDIAN RUNNER DUCKS.

Ever so many inquiries have come in regarding Indian Runner ducks and rearing ducklings. The most of these are answered in an article already sent in. Just now somebody wants to know what *kind* of Indian Runners I would recommend of the

three that are advertised and talked about. Now, perhaps I am not competent to answer such questions. This is what I think about it. I don't think it makes a bit of difference whether the ducks are black or white or yellow. It does, however, make a little difference in regard to the color of the *eggs*. It is an easy matter to select ducks that will lay white eggs from any of these three different kinds. Somebody recently asked the editor of the *Rural New-Yorker* if, in his opinion, the chickens that cost so much money at the chicken shows would lay any more eggs than other chickens. The good editor, or one of his correspondents, said that, so far as they could learn, it made very little if any difference at all. Poultry shows and the great crowds that gathered there were simply to show chickens that are good to *look* at. Now, friends, especially those of you who are beekeepers, you well know how many years and how much time and money were wasted in growing *bees* that "looked good." When we found bees that were handsome to look at, and were lighter colored than any we had had before, everybody was wanting them; but when we got right down to the facts of the case I discovered (and I think perhaps hundreds of others did) that the good-looking bees, as a rule, did not gather as much honey as some that were not so handsome. Leather-colored Italians, or the hybrids, gave the honey. In almost every neighborhood just now you will find somebody who has been foolish enough (I think that is the right kind of word) to pay \$1.00 apiece for eggs of chickens or ducks, and even more than that, when these high-priced eggs won't produce chickens that are any more valuable for eggs or for table use than those that can be bought at the ordinary price. The question is, what are you after—beauty or utility? If you want to do something for the world about the high cost of living, you don't want to pay 25 or 50 cents or \$1.00 apiece for day-old chickens. Without question, if you want to pay \$5.00 (or perhaps more) for a rooster that has been reared from a hen that has produced *pullets* that give a high record on eggs, it is good sense and real science. In this way you might also pay several dollars for a *pullet* from such a mother.

COUNTING CHICKENS "AFTER" THEY ARE HATCHED.

Our readers will remember that I have said a good deal about fireless brooders here in our Florida climate, saying no artificial heat is needed, even when you take chicks right out of the hot incubator and put them immediately into the fireless

brooder out in the open air. But in the past ten days I have had an experience that has made me think I ought to take back some things I have said. Right during the last week or two of the month of February we have been having a great lot of rain—very much such continued rains as we have here along in the summer; but although I have taken three hatchets out of the incubator this winter, and lost scarcely a chicken, when my forty-eight had to take their first two weeks during this rainy season, there was, I shall have to admit, a *need* of some kind of heat, either artificial or natural. It rained so hard, in fact, that the whole ground was flooded. Every poultry-house on the premises, including the brooder-house, had a puddle, more or less, on the floor. We put ditches around the outside, but the ditches seemed inadequate, for we hadn't fall sufficient to take it away. The chickens stood up bravely for two or three days, then there began to be drooping wings and evident signs of a lack of warmth. I suppose I might have used hot bricks or jugs of hot water; but this was considerable trouble; and I supposed, naturally, that the sun would be out in a little while, and that they would fetch up. The consequence is that I lost six or eight out of that nice hatch of forty-eight chicks from forty-nine eggs.

A week later the big fluffy Rhode Island Red sitting hen was given from another incubator twenty-eight chicks. The floor of her house was a little better drained than the other houses. The drain tiles were laid right under her, and underdrained down to a depth of about 20 or 24 inches, so the ground was comparatively free from dampness—that is, compared with the other houses. Well, this big motherly hen, when her chicks felt chilly or out of sorts, and made that peculiar peep, instantly sat down and invited them under her capacious wings. When we had the coldest night, so that one night there was just a little trace of frost on the roofs of buildings, she kept the whole twenty-eight quite comfortable. During the day she brooded them more or less at intervals, so that no chick felt any inconvenience from getting "cold feet" and feeling chilly. The trouble with the fireless brooder is, in the morning, after strong sturdy chicks have gone out to forage in the open, the feeble ones that are unable to follow them can't get up sufficient heat themselves without their comrades, unless there is some kind of heat like the mother hen, or perhaps artificial heat, and are bound to suffer almost in spite of us. Now, I believe I would rather have a great big

Rhode Island Red hen, or a large fluffy hen of some other kind, in place of any kind of brooder, fireless or with a lamp. Where chickens are raised by hundreds of thousands, of course we have to resort to artificial heat. But, as I have proved several times, one of these big motherly hens will take care of fifty and even seventy-five chickens very comfortably—that is, during such weather as we have here in Florida.

ANOTHER BIG DISCOVERY.

My ducklings are now eight weeks old, and it is quite desirable that they should have a wider range; but there are several reasons why I can't give them this wide range without building more expensive fences. You see the ducks are easily fenced with a two-foot netting, which you can easily step over. The chickens have to have about a four-foot fence which can not be easily stepped over. If we go through into their yard, or out of it, we have got to have gates. Now, I didn't want any more gates or fences, but I did want my ducklings to get through a yard where there were some half-grown chickens, and get a wider range and down to the water. Was it possible to make any opening through the fence that would allow the ducks to pass back and forth freely, and wouldn't admit the chickens? As the ducks and chickens were of about the same size, you would naturally say you don't see how it could be managed. Well, now, just listen. Right close to the dividing fence between the ducks and chickens was one of our underdrains to carry off the water. We dug a hole under the fence and then allowed the water from the underdrain to run over and fill this cavity. The cavity was deep enough so that, although the ducks went in and out without a bit of trouble, not a chicken dared to venture to go down into that mud-hole to get under the fence. Thus you see we had it. The ducks go back and forth as often as they please, but not a chick dares venture through to follow them to get into their yard and eat up their feed and jump over their two-foot fence. Do you say that this mud-hole under the fence will soon get to be very foul? Not so, for we have arranged so that water from the underdrain that goes in at this little pond comes out at the other side and keeps the water constantly changing. As the underdrain didn't carry sufficient water to keep things tidy and sanitary, we carried it up further on to higher ground, so as to get it down where we have a steady stream of running water.*

* About a year ago I told how we make an "artificial spring" by running tiles almost on a level up sloping ground, thus draining the land and getting running water at the same time.

Thus the ducks are not only watered, but they have water to wash off and swim in, and at the same time they have an open gateway where they pass at pleasure, but not a *chicken* can follow.

Later.—Since the above was dictated, the chickens learned, after all, to wade in pretty deep water; but the ducks had also learned the trick of diving, and we have lowered the fence until it almost touches the water; this, while quite agreeable to the ducks, proves a “dead open and shut” on the chickens.

GREASING THE ROOSTS, FLOORS, ETC., TO KEEP OUT VERMIN.

O. W. Mapes, “the hen man,” says in *American Poultry World* that if roost poles are saturated with hot tallow, and the places also where roosts are attached to the building, no lice or mites will ever get on the fowls. Where wood floors are used, say in a brooder house, saturate the floor also with tallow or other cheap grease. Of course, kerosene will do it; but it must be soon renewed, while the hot tallow penetrates the wood and stands for years. Mapes should know about this after his years of experience. Here is what the *Farm and Fireside* has to say in regard to the matter:

BESTING THE MITES AT LAST.

The fight of generations of poultrymen against external poultry parasites seems about to be won if the claims of “Mapes, the hen man,” prove to be borne out. Mr. O. W. Mapes is a poultryman of many years' experience, whose operations have been conducted on a considerable scale and with a good degree of success. His unique ideas for housing and handling poultry have become known to poultrymen in many sections of the country, and for that reason his recent utterances on the complete control of external poultry parasites deserve to have full and fair consideration.

Mr. Mapes now affirms that the long-continued fussing and fighting to keep poultry free from blood-sucking insects is needless. The only treatment necessary is to paint the perches once a year with beef or mutton tallow, covering top, bottom, sides, ends, and roost supports with the melted tallow, leaving no space, crack, or crevice untreated. This is absolutely all that is required to win the fight except to compel every bird to roost on the greased perches. Simple! Easy? Yes. The mite or other brood-sucker that gets a smear of grease gets a dose that ends his career.

We have contended against these minute foes that cause an aggregate loss of millions of dollars annually to the poultry industry long enough. Is Mr. Mapes to be the deliverer?

“EGG SECRETS.”

The *Farm Journal* people not only have a knack of getting out the most attractive-looking poultry books, but their books are “chock full” of valuable information and the finest pictures the world can produce. These books, at the low price of 25 cts., ought to be a rebuke to the authors of some

of the cheaply gotten up “chicken books” advertised in the poultry journals. I am pleased to see the book endorses my plan of placing the eggs on the small end for the first three days in the incubator, or until the unfertile can be tested out to make more room. Now, if this egg-farm of 20,000 laying hens were conducted solely for supplying fresh eggs for table use, there could be no ground for supposing the beautiful book was in any sense an advertisement of their business. We learn, however, on several pages, that “day-old chicks” and eggs for hatching is at least *now* (like the Corning egg-farm) a considerable part of their business. Notwithstanding, I think you want this book. See outside cover page of March 15th GLEANINGS.

MILLENNIUM COMING.

When our great railways begin teaching Christianity (and perhaps to *church members*), are we not justified in believing the millennium is “on the way,” at least? Read the following, which I clip from that excellent little Sunday-school paper called *Forward*, from the Presbyterian church:

THE CLAIM AGENT'S LETTER.

One of the largest railroads in America has a general claim agent who believes in the Golden Rule. He sent a New Year's letter, last year, to every staff officer in his department, and every claim agent employed by the whole big railroad system. This letter embodied a code of ethics, so to speak, for the guidance of his department in its dealings with the public, and it is worth reading and thinking about. Some of its paragraphs are as follows:

“Be polite and kind to the poor. Remember that many an honest heart beats beneath the ragged coat, and a kind word during life is worth the best sermon ever preached after death.

“Do not be deceitful. Tell the truth and take your medicine; it is better for your conscience, the company, and your fellow-men.

“Do not be a colossal knocker. Life is but a flash at best. We should help instead of knock.

“Be honest. Because a claimant is poor, do not take advantage of him nor of his condition. Fate may lead you his way some day.

“Be frank in all things. If a claimant asks your advice, give it openly and freely. If your advice is not taken, your duty has still been done.

“Be courteous. In dealing with the public, do not endeavor to create the impression that you own the road. Remember that the railroad is but the servant of the people.

“Be ever patient. Patience is a virtue which few men possess. If a claimant vilifies you and says all manner of things against you, treat him with all the politeness and kindness you possess; and ere the day has passed he will bemoan the fact that he has made an ass of himself.”

Good Christian rules these, as well as good business counsel. In reading them, it may be interesting to remember that the claim agent of a railroad has not a very easy job. All sorts of claimants, many of them unreasonable, attack him daily.

Now will some one tell us the name of the “great railroad” sending out the above?

Gleanings in Bee Culture

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Editorial

OUR COVER PICTURE.

OUR cover picture for this issue is the work of our Colorado correspondent, Mr. Wesley Foster, as mentioned in his article on another page. The picture shows weak colonies placed over strong colonies so that the former may share some of the latter's strength, according to the Alexander plan.

MICHIGAN'S NEW FOUL-BROOD LAW.

MICHIGAN has at last an up-to-date foul-brood law. Some years ago it had a county law that was practically ineffective, as such laws usually are, and then, later on, a State-wide law; but this law carried with it a very limited appropriation, and was otherwise defective in many respects.

Two years ago the late George E. Hilton, Mr. E. M. Hunt, and others, exerted themselves to get through a modern foul-brood bill, but were unsuccessful. The beekeepers of the State, however, did not despair. They renewed their efforts again this year, and were finally successful in securing an effective law having an appropriation of \$1500.

The administration of this new law has been placed in the hands of the State Board of Agriculture, and the latter has in turn placed it under the direct charge and control of the State Entomologist, where it should be, Professor Pettit, of the Michigan Agricultural College at Lansing. A competent inspector has already been appointed in the person of Mr. McMillen, of Guelph, Ontario, College.

Later.—Minnesota has just passed one of the best foul-brood laws we have. Particulars in next issue.

IMPORTANCE OF PROTECTING APIARIES FROM THE NORTH WIND.

As spoken of elsewhere in this department we have at the present time, May 9, eight different out-apiaries. As we have more yards this year than usual, several new locations had to be secured. As soon as the roads and weather conditions permitted we took a machine and drove out over our stone roads, seeking possible locations for bees. One spot about five miles out im-

pressed us as being very favorable for a yard. A steep bluff facing the south had at the bottom a nice grassy plot and a stream of running water. As the location was pastured with cattle we tried the experiment of putting the bees on the steep bluff or side hill. The hive-stands were fixed up in such a way that the backs rested on the ground while the front was supported by means of two stakes two or three feet long. In this way the hives were arranged in rows along the bank.

When our State foul-brood inspector in his annual rounds came here to look over our bees he remarked, "By jingo, Mr. Root, I guess I shall have to saw off one of my legs and splice it on to the other, if I stand up in front of those hives." It is a fact that, in order to work the hives, one must stand on one knee and a straight leg on the other. While this is inconvenient, the hives are away from cattle, and right where the sun can strike them nicely, and, most important of all, they are entirely screened from a north wind.

On the 7th of May, right in the midst of fruit-bloom, a sudden cold spell with a north wind came on. This stopped all bees working at all the yards except at this one on the bluff or steep side hill. Here the bees seemed to be working almost as well as at the other yards when the weather was warm. While a chilly wind was blowing strong from the north, the bees from this sidehill apiary were in a perfect roar. They would circle around in front of the hives, and, meeting no cold, would start off for the fields. When once started, they would not go back, but go to the fields, and so they roared all day. Whether they were gathering nectar we do not know; but busy they were.

Our State foul-brood inspector worked here all the afternoon in comfort for the bees and himself also, and he didn't saw off his leg either.

It is proper to remark that he found no foul brood at any of the yards except at one of the outyards, and that was a mild case. That colony was promptly burned.

•THAT AUTOMOBILE TRUCK FOR OUT-APIARY
WORK A GREAT SUCCESS.

The little machine has been kept busy in hauling bees and equipment to eight different outyards. It is capable of a maximum speed of 22 miles an hour when running light, and carrying a maximum load of over 1000 lbs. We can take easily 25 colonies at a load; and as it requires only a very short time to make the round trip, we can take another load of 25 and make up a whole apiary in the forenoon.

Our policy last winter was to haul bees home on a sled when snow was on the ground, winter them in our mammoth cellars, and then in the spring, after the roads hardened up, put the bees back again in their several yards with the auto truck before mentioned. The scheme is working out to our fullest expectations. Never before have we been able to secure any considerable amount of honey from fruit bloom; but the little auto truck has enabled us to scatter our bees early in the season, and carry them long distances to where the fruit-trees are located. In one case we had only ten colonies in a cherry-orchard; and in another case we had 40 colonies in a fifty-acre apple-orchard. After we began locating bees in the fruit regions, the farmers all around us began to ask to have bees put on their places, and next year we propose working for fruit-blossom honey as we never have done before.

While we shall not get any honey in supers to speak of, it is worth something to have the brood-nests filled with fresh honey, and brood-rearing in all stages of development. It is worth something to have fruit-men ask to have bees put on their places, because this saves the cost of rental.

As soon as the fruit-bloom season is over we shall move some bees from fruit-yards where clover is scarce to localities where it is abundant. This can easily be done with a light truck at comparatively small expense. It does not make any difference whether the entrances are perfectly tight all around. When the bees are once on the road, the fighting qualities are taken out of them; and even if they do get out, as they sometimes do, there are no horses to be stung. The truck we have is called the Commerce, and was made in Detroit by The Commerce Motor Car Co. Ours cost \$875, equipped with top, lamps, and all complete.

On one occasion our boys went out to a distant yard prepared to stay over night and sleep in the truck (which is covered), get up early, close the entrances, and drive back. But the bees fortunately went to bed early. We closed them up and came back that night.

To show you the possibilities of the truck, our yard-man who operates it and works with the bees at the same time went off on a trip yesterday to a place 60 miles distant. He left here at 6:30, loaded up, got his dinner, and was back here by 4 o'clock. The truck is used daily to carry the boys to the outyards; but when they go they always carry something with them. One crew of three men are now running seven yards. These will be operated for the raising of bees for nuclei and pound packages, for the production of honey, and the rearing of some queens.

SCHOOL FOR BEEKEEPERS IN MASSACHUSETTS.

PERHAPS the most complete—certainly the best equipped—school for instruction in apiculture is the one located at Amherst, Mass., at the Agricultural College. While there are regular students taking a course in apiculture under Dr. Burton N. Gates, the Agricultural College announces a special two-weeks' school for beekeepers to begin May 28, followed by a convention on June 11 and 12, at which time a number of prominent beekeepers from all over the United States will be present to give addresses. The following is the announcement that has been sent out:

The faculty and the courses which they will give are as follows: Practical Phases of Beekeeping, Dr. Burton N. Gates; Crops for Honeybees, Prof. S. B. Haskell; The Relation of Bees to the Pollination of Plants, Dr. George E. Stone; Structure of Bees, Mr. I. W. Davis; Bees and Beekeepers' Supplies, Dr. James B. Paige.

Students will have the use of the regular apicultural equipment of the college, consisting of about two acres with fifty colonies of bees and a modern building constructed especially for the teaching of practical apiculture. Practically every device used in American apiculture will be shown, it being the aim of the department to procure new inventions as fast as they appear, for the purpose of study and comparison. A library of over 700 volumes and papers of apicultural literature will also be available to students.

It has been found necessary to limit the registration to fifteen, and applications will be accepted in the order received. A registration fee of \$2.00 will be charged, and will constitute the laboratory expenses.

For bulletins or other information address Prof. W. D. Hurd, Amherst, Mass.

Besides the lectures there will be field-day work, showing how to take honey out of the hives, how to extract—in fact, do a hundred and one things connected with the general work of handling bees. The College has erected a modern bee-building for wax-rendering, extracting—in fact, for doing any kind of work connected with a modern beeyard. It is equipped with the latest machinery, including a power extracting-outfit, with a honey-pump.

The field day will be an exceptional op-

portunity for many of the veterans, and certainly for all beginners, to learn the very latest that there is doing in the way of taking honey from the bees. Particulars can be secured from Dr. Burton N. Gates, Amherst, Mass. When we say that, in our opinion, there is no other school of apiculture that will compare with this one, perhaps we should except the one located at Guelph, Canada, under the direction of Mr. Morley Pettit. Both are doing splendid work; but the school at Amherst has never been better equipped than now. In a recent letter received from Dr. Gates he writes:

This course, the spring work for the layman, is one of six courses in beekeeping scheduled in the institution. They are: Two courses for the regular college students, the four-year men; a ten-weeks' winter course for the winter students; the spring course for the layman; a two-weeks' summer school; besides the correspondence course. This outline, I believe, exceeds apicultural instruction given elsewhere. Moreover, you know that our equipment is by far the most complete, especially our collections.

THE HANDBOOK OF APICULTURE.

DR. ENOCH ZANDER, of Erlangen, Germany, has written a book with the above title.* It is in three parts, each part to be had separately. No. 1 is devoted to foul brood and its treatment. It is a practical condensation of all that is now known on that subject, and fully illustrated with pictures enlarged by micro-photography, whereby germs invisible to the eye are enlarged to half an inch in length; but it must not be inferred from this that the photos are better than any drawings.

Dr. Zander is one of the men most able to speak on the subject of foul brood, and he has covered the ground in this book of 31 pages and 16 illustrations. In speaking of the rapid multiplication of the germs which cause foul brood, he says one bacterium will throw off a shoot or bud every twenty minutes, so that in 24 hours it will have multiplied to 16,500,000, and in 48 hours to 281,500 millions of millions.

Dr. Zander divides brood disease into sour brood, the germ of which, as the doctor claims, is *Streptococcus apis*, basing this claim on Maasen; foul brood, due to *Bacillus alvei*; brood pest, due to *Bacillus larvae*, or *Brandenburgiensis*. The peculiarities are described minutely.

But Dr. Zander does recognize *Bacillus larvae*, discovered by Dr. White, as the cause of American foul brood, or what he calls "brood pest." At the time his book was published, or written, rather, he, of course, did not and could not know of Dr.

White's further discovery of the cause of the other brood disease, or what we call European foul brood—*Bacillus pluton*. As we understand it, Dr. White has proved that *Bacillus alvei* is non-pathogenic—that is, not disease-forming; and although for many years it has been supposed to be the cause of foul brood, the evidence is pretty clear now that it has nothing to do with either of these diseases, although present with *Bacillus pluton*, and sometimes found with *Bacillus larvae*.

Immediately following the work referred to above comes another from the busy pen of Dr. Zander, entitled "The Structure of the Bee." As its name indicates, it is devoted entirely to a description of the various organs of the bee; and if any thing has been omitted we do not know what it is.

This work contains 182 pages, including 149 illustrations. After this we have twenty full-page plates, showing in all 75 enlarged views of bee anatomy, photographed in almost every instance from the organ itself.

THE CALIFORNIA HONEY CROP A FAILURE.

THE following telegram, received just as we were looking up this last form, will explain itself:

Season is practically closed, with no honey in sight; orange almost a complete failure; sage not yielding; will be the lightest crop since 1904, and may be for twenty years. Same report from all sage and orange districts, no crop. Further particulars to follow for June 15th issue.

Redlands, Cal., May 12.

P. C. CHADWICK.

We may add that we have asked our correspondent, Mr. Chadwick, to send us telegraphic reports just as we go to press, so that we may give our readers the very latest regarding the honey-crop conditions on the western coast. The foregoing is the first of a series of night telegrams.

The prospects for a white-clover honey-flow in the eastern States were never better than now. It is beginning to get a little dry, but a rain would set every thing booming. Fruit bloom generally has been good.

MR. TYRRELL RESIGNS THE EDITORIAL MANAGEMENT OF THE REVIEW.

JUST as we go to press news has come that Mr. Tyrrell, Secretary of the National Beekeepers' Association, has resigned his position as editorial manager of the *Beekeepers' Review*, the Association organ. Mr. E. D. Townsend, one of the directors, takes his place, and the publication will be continued hereafter from Northstar, Mich. Overwork has compelled Mr. Tyrrell to take this action, and he will now devote his energies to the work of the National.

* Zander, E., Erlangen, 1911. *Handbuch der Bienenkunde*, in Einzeldarstellung. Eugen Ulmer, pub., Stuttgart. In three parts, of about 30 pages each.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

THOSE BRICK records, p. 233, are ahead of book records in one way—you can see at a glance the whole apiary without turning leaves. But you must be in the apiary to see the bricks, and you can see the book miles away from the apiary, and plan accordingly. Besides, you often want to consult the records weeks or years afterward.

G. M. DOOLITTLE, there's much in what you say, p. 252. The beekeeper cusses the commission man; but when the beekeeper gets in a tight corner it's might convenient to have the commission man help him out. Allee samee, if some of the middle business can be cut out, it will be just so much to be divided between the producer and consumer.

A GREAT honor has come to me. I've been notified that I'm eligible to become a member of the Burbank Society, which admits only choice specimens of humanity like myself. And it costs only \$150. Could one of you kindly loan me \$150?

Later.—I've just learned that a man as common as A. I. Root is allowed to be a member. Also that, instead of \$150, it costs \$151—a dollar more than I can afford. I think I'll not "jine."

You think, Mr. Editor, p. 284, that with immense buckwheat crops one might get more honey by dividing before the early harvest. Exactly what I tried to express. But when you hint that stimulative feeding might make early division all right for me, we part company. I've some question whether stimulative feeding would make my bees build up sooner; at any rate, you've got to "show me" before I believe that any amount of stimulative feeding will allow me to divide before clover-bloom without cutting down my honey crop. [We did not mean that stimulation would make early division all right for you. We really do not see how it could unless you can postpone your honey-flow a month or six weeks.—Ed.]

YE editor, p. 284, threatens me with having the whole fraternity down on me if I insist that "Al honey is superior, irrespective of quantity, to sugar syrup" for wintering bees. I don't like to be squashed that way, but I guess I'll have to stand it, for that's exactly what I believe. [That is right, doctor—stand by your guns; but we hope you will not be shot to pieces. Joking aside, possibly you are right; but we believe we are entirely within the truth when we say that it is and has been within the line of orthodoxy to recommend sugar syrup in place of honey as a winter food; that when either is

sealed in the combs the syrup is not only cheaper but better. Now, if we are going to be shot to pieces by this bit of orthodoxy, blaze away. GLEANINGS will furnish the battlefield.—Ed.]

My reason for not painting hives is economy, according to p. 232. That's a minor reason; and if it were the only one my hives would all be painted. My first reason was that Doolittle approved it. My main reason is the same as his—it's better for the bees. As one little item tending in that direction, I may say that one winter I had moldy combs in only one hive, and that was the only painted hive. [It is hard for us to believe that the paint on that one hive made all the difference between mold and no mold. We suspect that if you would try the same experiment on a larger scale you would not be able to detect any difference. Are you *sure* there is real economy in not using paint? Is it not a fact that an unpainted hive will gap at the joints more quickly than one that has been painted, and that an unpainted cover will twist and check so that it will not fit? Is it economy to let robbers get through these cracks? If it is economy to let our hives go unpainted, would it not be economy to let our houses go the same way? Say, doctor, here is such a good chance to "jab" you and Mr. Doolittle that we could not resist.—Ed.]

COMB-HONEY quotations have an unusual aspect. As is usual, the price toward spring dropped perhaps two cents. The unusual thing is that now, before any thought of new honey coming in, the price has gone up again where it was. I wonder just why this year should differ from other years, when it stayed dropped, no matter how scarce. [The markets have been more thoroughly cleaned up of *good* comb honey than ever before. There is a plenty of odds and ends and No. 2 and candied comb honey, but there is a great scarcity of No. 1 and fancy. Furthermore, intelligent and persistent advertising is now being carried on more extensively than ever to push the sale of both comb and extracted honey. If you will take a trip going through some of the large cities of the United States you will see that both comb and extracted honey are being put up more attractively than ever before. The packages, both of glass and tin, have the same professional appearance as other food products in glass and tin. Heretofore that has not been true. The day of cheap labels on cheap amateur-looking packages has gone by.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Mr. H. G. Quirin, p. 115, Feb. 15, is quite right in his statements that the prolificness of a queen does not depend on her size. I, too, have sometimes had a very small queen prove one of the most prolific in the yard. * * *

Mr. J. L. Byer inquires, page 76, Feb. 1, if foul brood is more virulent at times than others. I will say that this refers to European foul brood only. American foul brood in all localities seems to move on in the same slow sure way to the end. * * *

Notice of the death of D. H. Coggsball, Feb. 15, recalls to mind the pleasant day that I spent with him in his Florida home a year ago. I almost envied him his delightful home, surrounded with fruit trees and every thing to make life desirable. But he has been called away, and we are reminded again that this beautiful world with all its charms is not our permanent home. * * *

That picture, page 83, Feb. 1, of an orange tree bearing a crop of icicles instead of oranges is indeed a queer sight. In much of California as in Florida and other parts of the extreme South, frost is the weather condition most dreaded, while in the North a winter free from snow or ice is equally to be feared, as it will be almost sure to work mischief to the clover and fruit crops later. * * *

The editor says, page 73, Feb. 1, that the only thing fit to use during winter for closing entrances of hives when moving them is a light snow. May be in Ohio; but in Vermont we have moved a good many yards of bees in winter on sleds and found cotton wool to work perfectly. It is not always we have the light fluffy snow to use, and we always use cloth over frames somewhat porous. * * *

Mr. Chadwick says, page 75, Feb. 1, that in California they have a law compelling the use of movable frames. So far so good; but does such a law make the owners use them in a sensible way? Of what advantage is a movable-frame hive when the frames are two inches wide, or combs built crosswise of the frames, or a honey-board and bottom-board both nailed securely to the brood-chamber? * * *

On page 115, Feb. 15, Mr. David Roberts gives some facts in regard to the value of shelter in wintering bees. One thing he

seems to have overlooked; and that is, to give plenty of ventilation above the packing. If this is given, there will be little trouble from excessive moisture in the packing above the bees, no matter how carefully sheltered or protected. But do not shelter so much as to induce the bees to fly in weather so that they will get chilled and never return. * * *

Dr. Miller seems to think, page 74, Feb. 1, that there is no more enthusiasm among the young beekeepers of to-day than among the beekeepers of fifty years ago. I guess he is right; but I have been wondering if we have as many young beekeepers to be enthusiastic as forty or fifty years ago. In the pictures of the conventions we see in bee journals, most of those represented appear to be old or elderly men—very few young men. I sometimes wonder if the old men attend the conventions and leave the boys at home to look after the "chores." * * *

Mr. Chadwick, page 110, Feb. 15, speaks of the viciousness of bees in California; and I have noticed here in Florida they seem in most of the yards I have visited much crosser than in the North. I wonder if this is generally true; or is it because the bees I have seen handled were handled out of season or in the colder part of the year? Bees in Florida appear to be more sensitive to weather conditions than in the North. Bees in the North seem willing to work when the temperature is cooler than they will work here; and, again, they will stop during the hottest part of the day here, apparently on account of the heat, when they would not think of stopping in the North. * * *

I am under obligation to Mr. Wesley Foster, page 128, Feb. 15, for correcting me in regard to the rapid granulation of alfalfa comb honey. As I have seen the statement in print many times, and so far have never before heard it contradicted, I supposed it was a fact. I also passed through Colorado some years ago; and while stopping at a hotel over night I called for some honey at the breakfast table; and after considerable urging I secured a little granulated comb honey. This was early in November, and tended to confirm my views of the granulation of alfalfa honey. So, then, it is sweet clover, alfalfa, cleome, and wild flowers mixed that makes the trouble. Glad to know it.

Beekkeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

As the season advances and the trees and the grasses and weeds begin to turn green, and we keep time to the hum of the bees, we find many a beautiful picture before us that is worth taking. In this day of easy picture-taking, much pleasure can be derived from snapping the numerous things that have helped us to make certain work much more easy. Who will take pictures of interesting things this season, and send proofs to us for publication, together with a few notes to accompany them?

* * *

OLD COMBS AND BULK COMB HONEY.

The following question was sent by a western subscriber for our reply:

I have 200 shallow extracting-supers filled with drawn comb made from full sheets of medium brood foundation, having been worked above excluders. These are all wired. What I want to know is whether they will make good bulk comb honey by putting them on the hives this spring and letting the bees fill and cap them. So far as the wires are concerned I think I can pull them out when the combs are finished. But I am not aware whether or not these old combs will be tender enough to make a merchantable grade of comb. They have been used only two seasons, and are clean and in good condition.

I note also in GLEANINGS, Nov. 15, your remarks as to sizes of containers of bulk comb honey. As to the 12 and 6 pounds cans, will you kindly advise me where to buy them, and whether or not you get the cases for these *with* the cans, or do you buy the cases elsewhere? The factories from which I have quotations quote the cans alone, and make no reference to cases.

Extracting combs several seasons old should not be used under any circumstances for bulk comb honey, even if they are nice and clean, and especially not if they are built from medium brood foundation. For bulk comb honey nothing should be used that is not strictly newly built comb honey, and in all respects as nice and tender as your section comb honey that you are now producing. Nothing inferior to this should be put up as bulk comb honey. It is strange that the idea prevails in the minds of some beekeepers that almost any thing can be used for bulk comb honey; but it should be understood that bulk comb honey as produced in Texas, where this product as it is put up here originated, is nothing but what strictly section comb honey would be, produced in shallow frames, cut out and packed in nice clean cans, etc., of regular or standard size packages.

In our methods of manipulating the colonies for best results in comb-honey production we make use of shallow extracting-supers on all our colonies for producing bulk comb honey. These are left on the hives during the winter, and provide extra breeding room in the early spring in addition to the brood-chamber below. This in-

sure extraordinarily rousing colonies of bees for the honey-flows later. As the first flow comes on, these extracting-supers are already partly full of honey from the scattered sources during the spring, and all the honey that was not used during the early breeding season. As the flow begins, these are raised; and the new supers, filled with *full sheets of thin surplus foundation* in the frames, are slipped in between them and the brood-chambers. The bees go to work at once, and seem to try to fill the empty space with a vim that can not otherwise be obtained. After this the usual method of tiering up supers is practiced as needed during the honey-flows, exactly the same as in section-honey production. You will find, therefore, that the 200 supers with combs are a valuable investment, ready to be put on the hives in the spring to catch the early scattering honey. The extracted honey will be needed, and more than you will be able to produce in these supers.

These same supers will come in handy at the end of the honey-flows, to catch the scattering honey as the flows close. By having the honey extracted from these supers they are ready to go in the hives as soon as it is too late to give any more supers with foundation. Much honey is gained by this practice, both in the early spring and after the honey-flows, and the colonies are in better condition to give larger yields than when the old methods are practiced. Besides, we need much extracted honey, and we produce some of it at a time when it would not be profitable to produce bulk comb honey. The 200 shallow supers with combs are worth a great deal more, therefore, if used as suggested, than if they could have been used for bulk comb honey; and if shallow supers are used in this way on all colonies (especially if our number of colonies is large), the extra profit obtained amounts to an enormous item.

We have not bought any of our honey-cans without the cases, more because it has been more convenient to buy them with the cases; and then because we have not had the time nor the facilities to make our own cases. We understand that some beekeepers buy the cans in bulk, and gain by making their own cases. Here in Texas there are a number of dealers in honey-cans from whom we get our supply usually. Many car lots of these honey-cans are used in this State each year. Arrangements can be made direct with some of the can companies, especially if a carload of cans can be used at one place.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

TREATING PARALYTIC COLONY BY CHANGING HIVES AND COMBS.

Two cases of paralysis developed in my home yard of 16 colonies. They were the worst I ever saw. I waited day after day, hoping to see the bees improve, for as a rule this trouble is overcome by the bees themselves after a time. No improvement came, however, and they continued to leave the hive until early in the morning when there would be dozens and sometimes hundreds crawling and quivering on the ground. In one colony the force of bees dwindled until they were barely able to cover their seven frames of brood. I secured a clean new hive in which I placed one clean empty comb and some full sheets of foundation. The entire colony was shaken into this hive, and the brood was given to another colony, the result being that I have since seen no sign of the disease, and the bees of that colony are drawing their foundation rapidly. Just what was responsible for the cure I am not able to say, for I had little idea that a cure could be completed so quickly; yet here is the colony before me without any sign of the disease, while the other one still has the trouble badly, with no sign of improvement. I intend to let them alone for a time in order to see whether they continue to dwindle. The cure may be due to changing to a clean hive, or it is possible that being driven to comb-building and the use of much fresh nectar may be the cause of their recovery.

* * *

CHANGE IN INSPECTORS.

"Bob" Heron, the much-complained-of inspector of San Bernardino Co., has at last been removed by the County Board of Supervisors, and thus the curtain falls on the last scene of a ten-years' fight for his removal. And, strange as it may seem, the man who led the winning charge with the hope of getting the place has fallen in the battle. Mr. M. Segers, Jr., who circulated a petition for the place, and had the backing of the County Association as well as most of the beekeepers of the county, fell, as nearly as I am able to learn, a victim to his own thoroughness. He made the statement before the supervisors that he would take no man's word for the condition of his bees. When questioned about his father's he said the same. The young man was right; but that was too thorough for our supervisors, for it would cost some money. But how about the inspectors for scale? Do they go to the orange-rancher and ask

him if he has any scale? No! "Not on your life!" They just walk in and inspect. If they find scale, the orchard is fumigated without question, and that is the only sane way to go at it. Mr. M. J. Meeker is our new inspector, and we doff our hats to his authority. I will do so with the best of grace, though I fought him in favor of Mr. Charles Trout last fall, for I believed Mr. Trout was the best man in the county at the time for the place; but Charley was too young and ambitious to take the place, and is now making his way creditably through medical school.

* * *

A DISCOURAGING OUTLOOK IN CALIFORNIA.

Conditions in this part of California seem to me to be about as perplexing, disappointing, and discouraging as any time during the past ten years. The sage was frozen and badly damaged, the wild alfalfa was also nearly all killed (and this is a source that, while not at all appreciated when coloring our lighter grades of honey, in ordinary seasons it would be a great help in a season like this). We had hopes of a fair amount from the sage in case of late rains, but they did not come. We still had the orange. Though it too was badly damaged, the buds began to appear and to show signs of a good bloom; but they dropped rapidly before they opened, and nearly one-half of them never opened. It now develops that those that are blooming do not contain the usual quantity of nectar, and are passing out of bloom rapidly.

My scale colony showed a gain of 10 pounds to-day, April 26; but under old-time conditions they should have reached the 15-pound mark. Conditions are not so bad in some localities. Much of the orange toward the coast is in fine shape, due to the trees not being so badly frozen that they lost their foliage. On such trees the bloom is about normal, and should produce the usual quantity of nectar. More rain has fallen in the counties of Los Angeles, Ventura, and Santa Barbara as well as further up the coast than in the inland district, and some sage honey may be secured in those counties. But our chances inland are about as poor as one could imagine. One poor season is not so bad; but when they come in pairs and even three in succession, it makes us wonder if the bee business is really worth while. But old conditions will return to those who hang on, and then we shall be glad we persevered until a better day dawned.

Conversations with Doolittle

At Borodino, New York.

IMPROVING THE BEES.

"Mr. Doolittle, the ideas you advanced in regard to longevity of bees, and selecting stock along that line, are well worth studying and putting into practice. But are there not other lines of improvement which should be worked out as well as this one? Be kind enough to tell about some of the other things which go toward making *better bees*, and how you were led to your present standard of excellence."

"Without question, the prime idea of all who keep bees is the profit they will give. I think I should be quite safe in saying that, if they cease to yield a profit to their owner for several years in succession they would cease to have owners. That there is a vast difference in the profits from the different colonies in the same apiary was something I found out fully forty years ago when I had nothing but the old black bees to work with. One colony, or a majority of the colonies in the same apiary, would often give satisfactory returns at the end of the honey season, while others just as favorably situated, and in equally good condition in the spring, so far as I could see, gave little or no profit. This trouble was laid at the door of the German or black bees when the high praise of the Italians was first being sung in the sixties and early seventies. But a careful trial of the Italians showed that, while they were a more profitable bee than the blacks, yet they were no less subject to this variability in yield at the end of the season.

"A similar difference in stock is also noted by our dairymen. Certain cows in their herd can not be bought at any price, while others are an absolute bill of expense to their owners unless their carcasses can be turned into beef. Hence an effort is constantly made to propagate the good qualities and eliminate the bad. Now, this is just what every apiarist should do with the bee. And it is something which the majority of beekeepers have sadly neglected, although much more thought and effort have been put forth along this line in the last few years.

"We should start with the *best* race of bees. The Italian I take as the best domesticated honeybee yet brought to public notice, which I think is the verdict of the world's best apiaries of the present time. They are quite largely proof against the wax-moth and its larva, and very successfully hold out against the ravages of European foul brood. They rarely desert their

hives in early spring, no matter how moldy or foul their hives may have become through a disastrous winter. In one case, some 35 years ago, when colonies of black bees were deserting their hives by the score, not an Italian colony did this. I had a colony of these which numbered just 82 bees and the queen, by actual count, on May 15, and yet they held their hive with filthy combs, and protected their stores from robbers, building up so as to give quite a surplus of comb honey from buckwheat, while fairly strong colonies of black bees deserted combs and hives which were comparatively sweet and clean, or suffered their stores to be carried off by robbers.

"However, the main point of excellence in the Italian bees lies in the fact that, whenever a small amount of honey is obtainable, they are up and at it, often making a gain in stores while other races of bees require feeding to keep them alive. And as the profit side of beekeeping must come largely by way of the *stores* gained, after experimenting for years with all other races of bees, and proving that, for this locality, none others were equal to the Italians, I have decided that they are the *best* bees to use in carrying out any improvement.

"And now we come to 'the different lines of improvement' you ask about. In my late article I put *longevity* at the head, and above prolificness of queen, which was considered during the past to be the highest point to be worked for. Having the longevity part established, then efforts toward an extra prolificness of such queens will be in order. Then I would prune out every colony showing traces of black or other inferior blood. Next I would kill all queens which produce vicious bees. I consider the keeping of vicious bees only on a par with keeping a vicious cow or horse. Any of them are a danger, and a constant nuisance.

"Another class of colonies to be disposed of is that which fails to winter well or to give satisfactory results along the lines we are working, though in appearance and temper the bees may be faultless. These should have their queens replaced by others which we have reason to believe will be more to our advantage. In a large apiary it is often hard to account for the failure of some colonies in coming up to the standard we have set. But with such cases it is always safe to abolish the queen, providing one instead which was bred from the mother of the colony which has given the best results in all points under consideration."

General Correspondence

SWARMING CONTROLLED BY REVERSING THE ORDER OF THE BROOD-FRAMES AND REMOVING THE QUEEN

BY H. D. MURRY

When I began running out-apiaries in 1906 I had a plan for controlling swarming that had only one fault—it failed to control. It had been a good plan in another locality, but it failed to work here. I saw that I had to do one of two things—find a plan that would succeed here or quit running out-yards.

Just at this time Mr. G. M. Doolittle was telling through GLEANINGS how he built up an outyard and divided it just at the beginning of the surplus crop, and got a crop of honey from both divisions, prevented swarming, and made 100 per cent increase. I was favorably impressed with the plan, but it bore some resemblance to the plan that I had been following, and I knew that it would not work here, if followed just as Mr. Doolittle practiced it.

The same year, Mr. J. L. Stachelhausen, of Cibolo, Texas, told, in the *American Bee Journal*, what causes swarming. According to Mr. Stachelhausen it is a congestion of the brood-nest and a surplus of nurse-bees. He explained that, by splitting the brood-nest in the middle, and turning it wrong side out, the congestion could be broken. Every apiarist knows that the bees build their brood-nest in a spherical form. The combs in the middle of the nest contain the most brood, while those in the outer part contain the least. To perform the operation we reverse the order, placing those with the least brood in the center, and those with the most brood on the outside of the brood-nest, just as if we were to split an apple open and turn the convex sides together. In doing this we do not place any combs without brood in them between combs containing brood. The bees go to work at once to re-establish the spherical form of the brood-nest, and in doing so they fill out the center comb and extend the brood into the adjacent combs outside the brood-nest. By this plan, reversing brood every ten days or so, we can delay swarming till we get the brood-chamber full of brood. Then, unless we do something to prevent, there will begin to be a surplus of nurse-bees—that is, there will be more chyle accumulating in the stomachs of the nurse-bees than the brood can consume. Mr. Stachelhausen maintained that these nurse-bees with their overloaded stomachs grow restless and bring on what is known as the swarming fever. To

prevent this, as soon as the brood-chamber is full of brood, excepting the two outside frames, he advised that we remove two frames of sealed brood, putting in their place empty combs or full sheets of foundation.

Well, all that seemed plausible to me, but it was not complete, according to my ideas. So I turned to Dr. Miller's "Forty Years Among the Bees." I found that, in order to prevent swarming, he caged the queen for seven days. The idea occurred to me, "Why not remove the queen and start a nucleus with her and let her be laying during that seven days?" So from these three plans I evolved the one following, which has been a complete success so far as I am concerned:

As soon in the spring as the bees begin to build up I go over them; and where they have brood in four frames or more, I reverse the order of the brood-frames, as explained above. I do this every ten days until the brood-chamber is full of brood, excepting the two outside frames, which should be full of honey and pollen. Then I remove the queen with two frames of sealed brood, and start a nucleus with her. Twenty-four hours later I give the parent hive a ripe queen-cell. In ten days or so there is a vigorous young queen laying in the hive, and all inclination to swarm is over for that honey-flow.

When I remove the queen I replace the two frames, taken with her, with empty combs or full sheets of foundation, placing them near the center of the hive with two frames of brood between them. The nucleus may be built up later by adding brood taken from other hives that have become full of brood; but a queen removed early in the season will usually build up strong enough to winter without any assistance except the addition of empty combs or full sheets of foundation. This plan of removing brood will just as effectually retard swarming as the famous(?) Jones plan of shaving the heads off the brood. The principle in both plans is the prevention of a surplus of nurse-bees. Any thing that breaks the continuity of egg-laying in the hive for several days will retard swarming.

At each operation, reversing brood or removing the queen, I destroy all queen-cells in the hive. I hardly ever remove the queen and start a nucleus unless the colony gives indication of wanting to swarm by starting queen-cells.

Some will want to know where I get the queen-cells to requeen. If I am visiting the

yard every ten days. I can remove the queen from a strong colony, such as I want to breed from, and there will be cells there on my return ten days later, or the eleventh day when I want to requeen. However, I prefer to introduce the cell at once, upon the removal of the queen, by placing it in a cell-protector and placing that on one of the combs in the usual way. This saves an extra trip to this yard. Another way to get the cells is to have a queen-rearing yard, and carry the cells to the yard for all the increase one wishes to make.

By following this plan there is no let-up of work in the supers as there is by the shaking plan or any other plan that I ever tried, but work goes right along as if nothing had happened. In testing this plan in 1907 I tried it in two yards, with the result that there was no swarming in those yards. I made 100 per cent increase, and got more honey per colony than in any other yards. We thus have the matter of increase in our own hands. If we wish no increase, we may kill the queen and requeen as described above, or we may cage the queen as per Dr. Miller's plan.

Mathis, Texas.

MODIFICATION OF THE BALDRIDGE PLAN FOR CURING FOUL BROOD

Running the Bees from the Diseased Colony into a Healthy Colony

BY CHAS. M. MUSGROVE

The foul-brood situation in this part of Berkshire Co. is discouraging. Since the inspection in 1911, nothing has been done except by individual beekeepers; and in many cases where disease was found in 1911 nothing has been done in the line of treatment. The consequence is, we are surrounded with diseased colonies to such an extent that I, for one, made up my mind that I would go out of the bee business unless some way could be found whereby I could control matters in my own yard independently of the surroundings.

In the fall of 1911 Dr. Stockwell, of Stockbridge, Mass., at our beekeepers' meeting read a paper in which he argued from a medical standpoint that it is possible, by constant selection, to develop a race of bees that will be practically immune to the disease.

With every method of treating foul brood, so far given to the public, there is constant danger of spreading the disease through opening the hive and shaking out honey as well as bees. With the Baldrige plan the shaking is eliminated; but even then in opening the hive and catching the queen

there is danger that healthy bees will get some of the honey. Perhaps with experts there is no danger; but we are not all experts. In any case, if we wait according to directions until the beginning of the honey-flow, and then treat by either plan, our harvest is over before the bees have time to build up strong enough to take advantage of it.

In my experiment I have used the Baldrige plan as part of the treatment, and Dr. Miller's plan for requeening comes in also.

Early in May, 1912, when I found colonies with European foul brood I immediately closed the hives as they were before, and placed by the side of each an empty hive. This, I think, is an important step in the treatment.

Instead of doing any thing more with the diseased colonies, which we will number 1, 2, 3, 4, and 5, I proceeded to treat a colony which did *not* have the disease.

In 1911 I had one colony located between two diseased colonies which did not contract the disease, and which produced more comb honey than any other which I had. I went to this colony, which we will call No. 6, and commenced feeding for the purpose of forcing a swarm. The result was, that on May 18, which is very early for this location, I had a large swarm. This was hived in the usual way. Parent colony No. 6 was removed, and the new swarm put in its place. So far there is nothing new.

I then went to colony No. 1, removed the empty hive before mentioned, and put No. 1 in its place. Then I put No. 6 (which had just cast a swarm) where the diseased colony had been. The result, of course, was that most of the flying bees from No. 1 went into No. 6. Then in the evening I placed over the entrance of No. 1 a hollow tube extending to about the center of the entrance of No. 6, and ending with a Porter bee-escape, so that, as bees from colony No. 1 came out they were *forced* to enter No. 6.

No. 6, being reinforced with the bees from No. 1, became so strong that, as soon as the young queen could fly, they cast a larger swarm than the prime swarm headed by a young queen. This swarm gave me more honey than any other I had. Colony 6 swarmed the second time; was removed, and the new swarm put in its place without removing the bee-escape tube from No. 1. The remaining bees and hatching brood reinforced this new colony, and, for a time, two queens were working for the benefit of this colony.

Colony No. 6 was then taken to No. 2, and the same process repeated. In this way I treated five diseased colonies from hive No. 6—getting, in place of five diseased

colonies, five strong ones ready for the harvest. From four of these I had more surplus than from any other four colonies I had; and up to the time for final packing for the winter I had no trace of foul brood.

After all the bees had left these five hives I waited for a rainy day, removed the hives, and melted the combs.* This was the last of July. I think there was not one pound of honey in all the hives. It had all been converted into bees.

There are many advantages in this method of treatment; and, so far as my experience goes, no disadvantages.

1. No loss of brood or honey.
2. No chance to spread the disease.
3. Ease of operating (a box hive can be treated as easily as any).
4. Improving the stock, and working toward immunity.
- Automatic requeening.
6. Strong colonies ready for harvest.

Of course, more than one healthy colony could be used in this treatment; but I wanted to give it as severe a test as possible. It would seem as if bees from diseased colonies carry the disease with them when they leave the hive. In other words, if the Baldridge plan is not safe, then the hive through which five colonies had passed would show some sign of the disease before fall. It did not.

Pittsfield, Mass., Jan. 7.

REMOVING THE QUEEN AND TWO COMBS OF BROOD TO PREVENT SWARMING

BY A. C. GILBERT

Last year spring dwindling did not trouble our bees. They had a large amount of brood, but as they were mostly in air-spaced hives (chaff removed) none chilled during several weeks of cold weather. They built up into powerful colonies early, while other beekeepers around told of their bees dwindling.

Our bees were protected on the north by buildings, and on the west by a high fence. Had that something to do with it? As early in the season as the weather permits, all colonies are looked over in order to ascertain the strength and amount of stores. If any are found light in bees, some of the combs are removed, and the division-board moved up in accordance with the size of the colony. All needed stores are supplied, after which empty combs and combs of honey are added from time to time.

As swarming time comes, a number of the first swarms are hived on empty combs or foundation. If it is very early, and increase is desired, the swarm can be hived in

a new hive on the old stand and the old colony removed to a new location at once, or seven days later. This is a very common way, but all right at a certain time in the season. The right time in this locality is when the new colony will store well, as in the early part of the clover season. The old colony will be just right with a new queen laying for the last of the clover and bass-wood.

If no increase is desired we sometimes remove, for fourteen days, two combs of brood and some bees with the queen. If no cells were started at the time of removing the queen, removing the two combs once is all that will be required before returning the queen and brood. If two combs and a queen are set back of the division-board with a small piece of zinc on it the queen and brood can be returned with perfect safety to the queen on the fourteenth day.

MAKING STRONG COLONIES THAT SHOW SIGNS OF SWARMING DRAW OUT FOUNDATION FOR BAITS TO BE USED BY WEAKER COLONIES.

When very populous colonies show signs of swarming, shaken swarming can be practiced, which might save some confusion by preventing too many swarms coming out together.

I have often read how colonies not very populous store comb honey in the bait sections only, and leave the foundation untouched. I struck on a way to get foundation drawn for such colonies. During a time when the bees are gathering nectar rapidly, place a super of sections with foundation on top of the super or supers already on a very populous colony. In from 24 to 36 hours the foundation will be drawn out beautifully and white—far enough so that a moderate-sized colony will begin to store at once. I think there is a gain of one or more supers from such colonies some seasons. During the time the bees are drawing the foundation there seems to be no let-up in storing honey.

Honeoye Falls, N. Y.

PROTECTING BEES FROM INJURY WHEN SHAKING THEM FROM COMBS

BY M. G. DERVISHIAN

When shaking bees from combs with a sudden jerk on the entrance-board or on the ground, the bees are injured more or less, and become angry. To avoid this, and in order to save the queen from any injury, I make use of a soft quilt half an inch thick and about two feet square. I spread this before the entrance, and over it a soft nap-

kin extending very close to the entrance. The reason why I make use of the napkin is that often the light nectar is thrown out by the sudden jerk and falls on the napkin. The quilt is then saved from being soiled, as it can not be washed as easily as the napkin; and when the very young bees remain in heaps on the napkin I tilt it and shake then toward the entrance. In this way I help them to go into their hive very easily, so it takes only a few minutes to make all of the bees enter the hive. I shake the bees in the same manner as explained and illustrated on pages 19-21 in "A Year's Work in an Out-apiary," by Mr. G. M. Doolittle.

PROTECTING BEES FROM BEING CRUSHED BETWEEN THE WALL OF THE HIVE AND THE SIDE-BARS OF FRAMES.

The shape of my frames resembles that of the Hoffman, but they are only eight inches deep. For end spacing I make use of a small headless wire nail on the under side of the top-bar in place of the end-spacing staple used on the Hoffman frame.

To prevent the bees from being crushed or hurt between the side-bars and the wall of the hive I drive a small wire nail at the outside of the lower extremities of the side-bars of the frames. This nail furnishes a bee-space when lifting upward the first one or two frames from the hive. Of course, when one or two frames are removed the others are taken out by moving laterally. In this way no bees get hurt or killed, and so my pets do not hate me.

ATTRACTING NATURAL SWARMS BY THE SMELL OF ORANGE LEAVES.

When I see that the bees are swarming I cut from an orange or a lemon tree a small branch with a few leaves. I bruise some of these leaves so as greatly to diffuse the smell. The bees are very fond of this refreshing odor, and they go and cluster on the branch. Sometimes when the bees are not flying high in the air I put the lemon or orange leaves in an open hive in which I intend to keep them; and when I move the hive near, the swarm descends and takes possession.

Nicosia, Island of Cyprus.

DECIMAL SYSTEM OF HIVE NUMBERING

BY THOS. BOLTON

In your July and August issues of last year, different writers point out the mistake of numbering *hives*, and say that the *stand* or position is what should be numbered. This is a correct conclusion, and step No. 1 in advance. But they still seem to adhere to some affixing of numbers to the stand;

and this has so many drawbacks, and involves so much extra walking about to view the numbers, as well as a "fixing" of some kind to each position, that if we can devise a means to do away with these evils we shall have taken step No. 2 toward an ideal system and a big step, too, for the oft-times hurried apiary worker.

There is a simple plan whereby we may accomplish this, and upon which I have worked my home and out apiaries for the past 20 years or more. It begins with the arranging of the apiary in rows of ten stands, preferably at regular intervals, or it may be of ten groups of stands. We then place at the beginning of each row, *after the first*, a numbered board about 9 x 7 inches, painted white, with figures in black, and as large as convenient. These head-numbers, as we call them, are nailed to stakes about 42 or 48 inches high, and it is sufficient, we find, to place one at the head of every alternate row instead of one to each row. The first board will be (as stated) at the head or beginning of the second row, and fourth and sixth rows, and so on. As there are ten stands in the first (and every) row, it will be seen that the first stand in row 2 will be 11; in row 3 it will be 21; in row 4 it will be 31, and so on, each ten in advance of the preceding row. In actual practice we omit the unit 1, and so the head numbers above read 1, 2, 3, the operator mentally adding the requisite figure as he makes his record or gives his instructions to an assistant, indicating any particular colony. This required figure will be known by a simple glance along the row.

Let us suppose he is at the sixth stand in any row. A glance, as he straightens himself preparatory to moving on, shows that the head number is 1; consequently the hive is 16; or if the head number were 5, say, or 12, or 20, you simply place 6 beside it, and your hive is known, without any loss of time, as 56, 126, or 206, as the case may be. There is, therefore, no need of numbering every stand—no need to walk about to sight a figure possibly on the end of a hive that is furthest from you; and the veriest novice can be sent with certainty to any hive. Then, again, if one is at, say, stand 75, on either side are stands in neighboring rows that perforce are 65 or 85—no count needed. Compare the plan of alphabetical letters or other schemes with this decimal system of hive-numbering, and they are as a farm wagon to a motor car.

Lambenk, Victoria, Australia.

[This is very similar to the plan suggested by Arthur C. Miller, p. 665, Oct. 15, 1912.—Ed.]



Apiary of John Wallace, Grand Junction, Colo., where bees were poisoned by spray falling on clover under the trees.

SPRAY FALLING ON CLOVER KILLED BEES

BY WESLEY FOSTER

Early last fall I was called to the vicinity of Grand Junction to investigate the cause of so many colonies dying during the height of the season. I reached Grand Valley about the first of September. Mr. John Wallace, a fruit-grower and beekeeper, met me at the hotel and took me out to his place, a mile and a half east of Grand Junction. We passed the now abandoned Indian school, surrounding which is some of the typical seepage land of the western slope country. Alkali shows in many places, and the orchards have either died out or are dying.

Mr. Wallace had lost upward of one hundred colonies of bees, so that was the principal topic of conversation. The only thing that was very apparent was that the trouble was caused by spraying. But spraying has been done for years, and little trouble such as befell the bees had been experienced before.

A few points regarding the methods of spraying may not be amiss. Most of the fruit-growers are alert and up-to-date, and do not spray during full blooming time, although there are some blossoms that get the spray before the petals fall, as all trees do not bloom evenly. But from five to seven later sprays are applied; and the spray falling upon the clover, alfalfa, or other

blossoms beneath, would doubtless poison the bees. "Cover" cropping has been practiced more and more each year—alsike, red clover, alfalfa, and sweet clover being grown. The amount of cover crops in comparison to the fruit acreage is small, and this has led some to think that the spray could not cause the trouble.

Arsenate of lead is the spray material that has been used largely; but because of its expense a considerable number of fruit-growers have been trying arsenide of zinc. I understand the arsenide of zinc has not given the results secured from using arsenate of lead. The trouble from poisoning bees began about the same time as the use of arsenide of zinc, so that this seemed the cause in some minds.

The spray which fell on the clover poisoned some cattle and horses that were pastured in the orchards.

Some died and others recovered. Mr. Wallace had a cow that sickened and dried up, but she finally recovered. A flock of sheep pastured on the alfalfa in the orchard shown above were not affected by the poison on the leaves at all. The sheep are shown back of the row of hives. These colonies were purchased to help make up the losses caused by the spraying. Mr. Wallace told me early in March this year that he had only about 35 colonies left, so his losses have been considerably above one hundred colonies.



Partial view of P. Mereconchini's "Virginia" apiary, located near Manzanillo, Cuba.

The losses were confined to the fruit districts. As soon as I got two miles away from any orchards no more losses were found among the apiaries, and good crops and plenty of increase was the rule.

Boulder, Col.

AN AMERICAN APIARY IN CUBA

BY P. MERCONCHINI

I take pleasure in sending a partial view of my little beeyard, located about 300 yards from the last house in this city, and near to the Cuba Railroad water-tank. I am now running 50 colonies, as I have no time to attend to more. The bees are all Italians, of an American strain.

In this vicinity there are about 2500 colonies. My assistants are my two boys—Rodrigo, 11 years old, and Luis Maria, eight. They are good assistants but better honeyeaters.

Manzanillo, Cuba.

THE LATEST FORM OF THE FERGUSON UNCAPPING MACHINE

A Light Model that Can be Pushed Down Over the Top-bar while the Frame is Still in the Super

BY L. R. FERGUSON

Since the appearance of the article, July, 1909, describing my uncapper, I have been devoting most of my spare time to develop-

ing a machine especially adapted to use with the Hoffman frame. As the character of the end-bars is such that the frames can not be pushed through the machine endwise, as in the former machine, it occurred to me that there would be a decided advantage in making the machine light enough to be easily handled and pushed down over the frames as they hang in the super, and then leaving them in the super to drip, thus eliminating one handling.

To obtain the best results, the capping tank should be set low down and provided with slides or rails so arranged that the supers as taken from the hives can be put on at one end, and easily slid along toward the extractor at the other end after the combs are uncapped. In this way the handling or moving of the combs is all done by the superful instead of singly, thus saving a great deal of time. When the supers are set on the slides the frame next to the operator should be removed to give room for the machine to enter the supers. These removed frames should be put in another super; and, when the right number have accumulated, put on the slides with the others.

In the act of uncapping, the operator grasps the handles of the machine and enters the points of the end plates, one end at a time, just inside the end-bars of the frame as shown in Fig. 1; then he pushes the machine straight down over the frame, removing the cappings from both sides of the

comb, the cappings dropping into the tank below.

If it is desired to leave the comb in the super the machine is then withdrawn, and the operation repeated on the other combs in their respective turn; but if it is desired to remove the comb, the operator grasps the handles at the center, which causes a couple of dogs, or catches, to engage the top-bar of the frame, and the comb is withdrawn with the machine as shown in Fig. 2, and may be deposited in any desired place; but in either case it is not necessary for the operator to touch with his hands a single frame until they are lifted to put in the extractor.

Nearly every one to whom I mention this feature of leaving the combs in the super after uncapping doubts there being any advantage in it; but let us see. After the machine is pushed down over the comb it is nearly as quick and easy to withdraw the comb as to leave it; but after it is withdrawn it takes fully as much time to swing the comb over to any kind of rack, deposit and release the comb, and bring the machine back to position as it would take to uncap another comb; or, in other words, two combs can be uncapped and left in the super in the time required to uncup one and deposit it in some other place, or the simple expedient of leaving them in the super will double the capacity of the machine.

Considering the great variation in styles of frames, and in the degree of care or carelessness bestowed on the building or securing of combs, I believe I am safe in saying that there will never be built a practical machine which will work equally well with all makes or styles of frames, so it follows that the machine which will work well with the class of frames in most general use will be the most practical machine, and that is just what I believe I have produced. But, as with all other improvements, it will be necessary for the beekeeper to meet it part way by making such changes in his management and equipment as will favor the successful use of the machine, and this means a little extra care to secure reasonably straight combs, and wide enough spacing to insure as much as a $\frac{1}{8}$ -inch bulge on each



P. Merconchini's two boys who will be extensive beekeepers some day.

side of the top-bar. This will insure a gain or saving of two frames in ten, or 20 per cent in frame equipment, and anywhere from 50 to 75 per cent in the cost of uncapping; and this saving surely makes it worth while to take some extra pains in securing the right kind of combs.

Mr. J. J. Wilder, of Cordele, Ga., who has used two of my experimental machines, writes me in part as follows regarding his impressions of the last one:

Your 1912 model uncapper came to hand in due time, and we set it to work at once, and have done a lot of uncapping with it. I uncapped lots of old tough combs containing thick sticky honey, and we are pleased with it, with only one exception. We can't get close enough to the top-bar with it. It leaves from two to five rows of cells near the top-bar on straight smooth combs built out just even with the top-bar; but it runs over them nicely when they are bulged a little. * * *

This is the only suggestion I have to offer, for it certainly uncaps the honey in shallow and deep frames except a few rows of cells at the top, and this is so easily overcome that a suggestion is not



P. Merconchini and his extracting force ready for work.



FIG. 1.—Latest form of the Ferguson uncapping machine. Entering the points of the knives at one end of the frame.

necessary. * * * We must have one of our own next season. It works well and fast, and leaves the combs in ideal shape. * * * I did not sharpen the knives while here. I thought several times I would; but upon examination I found them as keen as they were when they arrived. * * *

We put up in all, while your machine was here, 24,000 lbs., and the uncapper was run over every comb that it would uncap, even a portion of the combs, so you can tell about the amount of service it gave us.

The above amount refers to "bulk comb," so the amount uncapped would be the amount necessary to put up that quantity of "bulk comb."

Another beekeeper who had the machine wrote me in part as follows, and his criticisms are those most frequently raised:

There are many thin combs with irregular surfaces that the machine will not get at. Another thing, one could not use the machine on combs containing any sealed brood.

If I understand the above, it means extracting combs thinner than those of sealed brood; and I am free to admit that satisfactory results could not be obtained under such conditions. The facts of the case are that neither of these men had made any special effort to secure thick combs for use

with the machine; and Mr. Wilder especially, I understand, uses eight frames in an eight-frame super, securing a slight increase in thickness by leaving out the division-board, so it is easily seen that the results are not such as would be obtained where the proper preparation had been made.

The one element of uncertainty is whether or not beekeepers can and will produce combs that bulge $\frac{1}{8}$ inch or more beyond the top-bar for about two inches down. The form of the knives will not admit of their cutting in abruptly under the top-bar; but they must pass straight down for about $1\frac{1}{2}$ or 2 inches, or until their heels have passed the top-bar, and then they are automatically forced in toward each other until they are just far enough apart to pass the bottom-bar so they will take care of any ordinary irregularities in the central and lower parts of the combs where they are most apt to occur. This style of knife has now been used long enough to prove beyond doubt that it is successful and practical.

I will admit that bulged comb can not be secured without some special care; but I do know that I can produce such combs, and uncap them easily, at the rate of ten frames per minute; and a speed of twelve to fifteen frames per minute would not be hard to attain, I am sure, after one becomes somewhat expert in handling the machine.

I find that eight frames in a ten-frame super are about right for good results; and after the combs have once been built out and uncapped, each later filling and capping is bound to build them out enough to insure a good clean job of uncapping.

Harvey, Ill.

BEEKEEPING IN THE SEMI-ARID REGIONS OF OKLAHOMA, KANSAS, AND NEBRASKA

How Sweet Clover is Being Developed

BY E. R. ROOT

Business and other reasons called me into Oklahoma and Kansas along the latter part of January; and in our Feb. 15th issue I promised to write up the beekeeping conditions in those States, saying I thought there were exceptional opportunities for the development of new bee territory alongside of those immense acreages of alfalfa in the valleys. In accordance with the promise then made, I present a few observations, with particular reference to Oklahoma, where I spent most of my time, in the vicinity of Stillwater. Here resides Mr. F. W. Van de Mark, Secretary of the Oklahoma Beekeepers' Association, and Prof. San-



FIG. 2.—Withdrawing the uncapped frame from the super.

born, Entomologist at the Oklahoma Agricultural College.

I do not know of any State in the Union that offers greater promises in an industrial way than Oklahoma. Its cities and towns are growing by leaps and bounds. Immense beds of asphalt and coal have been discovered there. Gas and oil wells are being put down in many places throughout the State. Agriculture is developing at a rapid rate, and beekeeping is one of the industries that has a future. The trains are loaded with home-seekers and butchers and bakers and candlestick-makers, suckers and fakirs rushing to the land of gold and sunshine. I said "suckers." I do not know any other term that adequately expresses the large class of people who buy land out in that western country, some of which is worthless, and buy with their eyes shut.

Let me say as I have said concerning Florida and every other new State that is being rapidly developed. There are fakirs and suckers by the hundreds; but having said this, there are some excellent opportunities for men of brain and caution to invest in land that will bring some splendid returns. But there are other lands that will take a lifetime before they will bring the price that has been paid for them. Not until the population of Oklahoma becomes congested and elbows touch will this land not so good be developed. In this connection let me say that there is a great deal of

difference in the productiveness of land in Oklahoma and Kansas. Some of it will yield immense crops, and some of it poor crops. Pictures showing some fabulous yields, accompanied with photos or half-tone engravings, are sent out broadcast over the country. They catch the eye of the get-rich-quick fellows, who, of course, swallow the bait, hook, bob, and sinker. They leave a good job in the East, sell out, and move their families. There are hundreds of such families who have been robbed of their hard-earned money. It makes one's heart bleed to see them stranded on poor or worthless land, and no money to go elsewhere. The land shark got it all. And while GLEANINGS is willing to show that there are splendid opportunities in some of this western country, it also enjoins caution. Do not take the statement of the man who has the land for sale. Spend a little time in the country, and gather all the information you can. There are thousands of honest men who will tell you the truth if you will take pains to look for it. This is not only true of Florida and Oklahoma, but other States in the Union.

Now, then, how about beekeeping in Oklahoma, and I might also class with it Kansas, for the climate and soil of the two States are much the same? Alfalfa is being grown in both States as it never was before. The Kansas farmer once supposed that the only thing he could raise was corn;



One of J. J. Wilder's apiaries, made up of Caucasian and also Italian colonies, run for the purpose of proving which are superior.

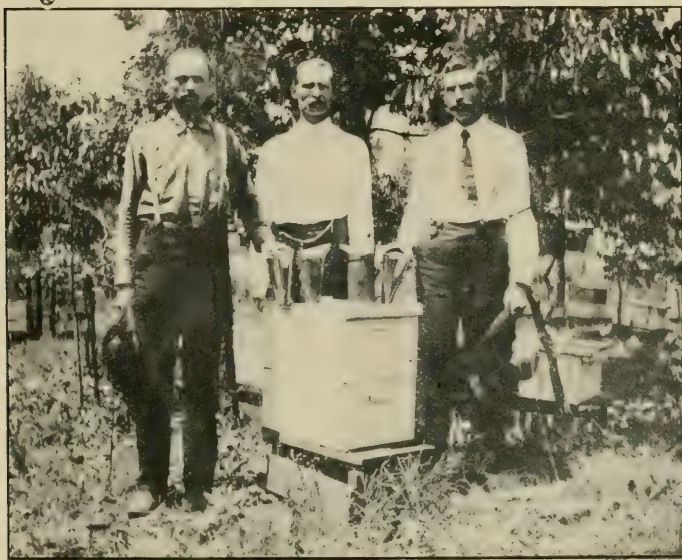
but he is now discovering that alfalfa will grow along the creeks and rivers—that is to say, in the valleys where it will yield immense crops, of sometimes three or four cuttings in a season. What is more, this semi-arid country does not have to depend on irrigation, which sometimes fails further west. Its own creeks and rivers water the valleys on both sides, and the dwellers in these valleys are becoming prosperous, and largely on account of alfalfa which enables them to produce meat. With the present

a home-seeker's ticket with the privilege of stopping off, taking in the territory of both Oklahoma and Kansas. Let him stop a few days at a number of hotels. Let him inquire carefully where alfalfa is grown. Go over the whole territory, and then after returning home let him fix on some location, and make a start in bees where no one else is located.

Another promising thing in both States is that farmers are beginning to find that sweet clover will grow on the uplands, and furnish a fine hay and pasturage for sheep,

hogs, and cattle. In fact, sweet clover will grow on these uplands where it was supposed that nothing but prairie grass would thrive. But sweet-clover pasture I am told will support a much larger number of hogs and sheep than even alfalfa, because it can be cropped down closer without killing. There is bound to be immense development in this legume, in these semi-arid regions, in the next ten or fifteen years; and the early bird if he looks before he leaps will be the one that gets the worm.

In Oklahoma we find that cotton can be



J. J. Wilder, the late Mr. Herlong, and Mr. English.



L. E. Thoen's apiary in apple-blossom time.

grown in a large portion of the State; and cotton is an important honey-plant. It works in very nicely with alfalfa; and while the honey is not the best, it is very much better in color and flavor than has been commonly supposed. Professor Sanborn, before mentioned, has discovered that cotton yields not only honey but honey-dew. But I will not say more about this, because he has made some discoveries that he will make public later on. Permit me to say that Professor Sanborn, Entomologist of the State, is one of the most progressive men in his profession. He is a beekeeper by birth and training, and an entomologist. He is doing every thing he can to foster the general bee business within the State. He has a small State apiary for demonstration purposes, and apiculture is one of the courses taught at the institution.

THE INDIAN QUESTION.

Once or twice at the hotels I ventured to talk about the Indian question in Oklahoma. Finally one man across the table, observing that I was a tenderfoot, said to me, "Young man" (I am nearly 51), "the less you say about the Indian question, the better for you." Then dropping his voice down to a whisper that I could just catch, added, "It is a *redhot* question, stranger—much hotter than the negro question in the South. Believe me, no matter which side you take, you will get into hot water."

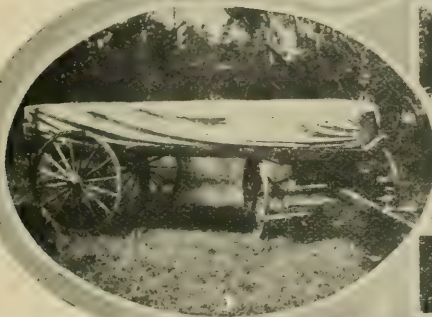
I put out several "feelers," and found that he was right. I may say, however, at

this distance, that the Indians own valuable lands in the western part of Oklahoma—lands that have immense deposits of asphalt and coal. Some of the Indians are immensely wealthy. They have no conception of the value of a dollar. The white man is fleecing them right and left with all kinds of devices. Uncle Sam's agents are trying to protect them, and it was hinted that *some* of them *might* be open to bribes. Certain it is, the Indians are losing their lands, and the white men are getting possession. From the standpoint of industrial development this is, no doubt, a good thing; but from the standpoint of equity and right it is wrong—that is, providing the white man cheats his copper-skinned brother out of his just rights.

Why is the Indian question a "hot one?" Because it is mixed up in politics, both State and national. Honest men have different opinions, and some men not so honest are biased by selfish schemes.

There will doubtless be considerable inquiry concerning Oklahoma and Kansas, and so I take pleasure in referring to two men who are not interested in the sale of land who may be able to give some information; but perhaps they will not thank me for giving them this kind of publicity. However, I will take the risk: F. W. Van de Mark, of Stillwater, Oklahoma, and Carl F. Buck, of Augusta, Kansas.

Shortly after the Feb. 15th issue of GLEANINGS was out, I received a couple of



Scholl's handy apiary wagon.

letters from subscribers in Kansas, who, fearing I would make too rosy a description of the semi-arid West, wrote, suggesting caution; but I am happy to state that the article above was written before the letters came, and so I think no one will accuse me of booming new territory if he reads all I have written, especially what I have said above. There are good and bad lands, and there are sharks and honest men. The wise man will use his own judgment as he thinks best. Here are the letters:

In GLEANINGS for Feb. 15, page 106, you refer to alfalfa yielding honey in Kansas. This is true of a good many localities in the State, but not all. In the country immediately surrounding Topeka it is only occasionally that bees will work on alfalfa bloom.

At our State beekeepers' convention this year the honey reports ran anywhere from ten to one hundred pounds per colony. Most of the heavy yields came from localities where alfalfa is grown for seed. It seems to be a fact that, where seed-growing is profitable, conditions are such that the plant secretes considerable nectar.

A man who has a favorable alfalfa location in one of our western river bottoms said that, in his locality, alfalfa could be depended upon to yield nearly all season if it was on land where water could be reached at a depth of ten feet or less, while alfalfa on higher ground could be depended upon to yield only after a refreshing rain.

Alfalfa is particularly susceptible to atmospheric conditions; and any one not familiar with the peculiarities of this plant would be apt to go astray.

North Topeka, Kan., Feb. 24. A. V. SMALL.

The following is a private note to the editor, not for publication, but as it states the "other side" I give it here without the name and address.

I believe it wise to go very slow about advertising Kansas as being great for bees. There is no class so easily stampeded as beekeepers, on account of being able to move what they have. The sight of alfalfa does not imply bee locations by any means. I have alfalfa on my farm. My neighbor has fields 18 years old; but I never saw a bee on it, nor have I even seen a pound of alfalfa honey produced in the eastern part of Kansas, and I have lived here 35 years.

Where alfalfa is grown for hay it is not much of a success for bees. Where irrigated, which is very little in Kansas, and where grown for seed, there is not much of any flora to build up with; and then in these last-mentioned districts, the winds!

Sunflowers and cottonwood along the streams, and wheat and corn districts are nothing to start a stampede on. Kansas is a great State agriculturally, but a mighty poor place for people of moderate means to make a start, as our farms are large and the land valuable. I am of the opinion that a matter of location is one to approach with care. I am of the opinion, also, that any thing of extensive transitory or non-resident beekeeping would be a flat failure in Kansas or Oklahoma; besides, such beekeeping would be conducive to disease.

SUBSCRIBER.

I know of places in your State where alfalfa does yield honey.—E. R. Root.

WINTER CASES MADE OF OLD BOXES

BY L. E. THOEN

I am sending a photograph showing part of my apiary on the 28th of April, 1910. Most of the hives, as shown, still had the winter cases on. Those cases were not very sightly, as they were made of all kinds of lumber. There was a space of two or three inches between the hive and the case on all sides except the front, and also a few inches on top, to be filled with packing, a tight cover completing the case. The bees wintered as well with these boxes around the hives as they do in the more expensive outside cases that I am using at present, which are built of inch lumber, with a telescope gable top of the same material, the latter covered with galvanized iron acting as a roof.

Spearfish, S. D.

MORE ABOUT CAUCASIAN BEES

BY J. J. WILDER

Owing to the great variation in conditions which season and location bring about in the beekeeping industry it is possible to advocate too strongly some particular feature, such as stock, methods, or conveniences. It may be that I have advocated Caucasian bees too strongly; yet, on the other hand, possibly not enough has been said about them in our bee publications. Many have tried them, and very few have condemned them. In the majority of cases where they have been thoroughly tested they have been found superior to any other race of bees. In some instances they have even revolutionized beekeeping, so they must have a high commercial value, and must be here to stay.

Each season for a number of years, except this spring, I have been rearing and selling queens of this race of bees. This season I could have sold more than 1000 queens, and most of these to the same old customers; but since I have decided to go into very extensive beekeeping I will not offer any more queens for sale, but will use all I can possibly raise in my own apiaries. Since they have met with the approval of so many, are fast coming to their own, and have so completely changed beekeeping for the better in my own experience, I can not withhold my pen. I have tested these bees very extensively, and from time to time I have made known what I have found about them, good or bad.

I want to emphasize again two of their superior qualities—viz., that for honey-gathering and of rearing large quantities of

bees throughout the season. I will do this through the testimony of another beekeeper whose experience exactly coincides with mine.

Mr. J. J. Wilder:—How are your Caucasian bees holding up? Are they still leading the Italians in real business? Mine have, and in this location of no honey they average me 50 lbs. surplus while my neighbor's eight colonies of Italians stored no surplus at all, and, besides, dwindled to only four colonies.

Another beekeeper near by had 108 colonies of Italians, and they decreased to 47, and he had to resort to feeding nearly all summer. It is plain that the Caucasians gathered honey from some source while these two lots of Italians were perishing.

Then, too, they kept their brood-nest chock full of brood all through the season, and I doubled the number of colonies and got an extra set of combs built in the supers. It would have done you good to see the great stream of bees going and coming from each hive while the honey-flow lasted.

I imported some queens this season direct from the Caucasus, and the workers are uniform in color, and not a trace of yellow about them, nor are they dark in color, but a dull gray, and are as striped as zebras. They are hustlers too. I am going to make a specialty of Caucasians, for I believe that they are the coming race of bees. My friends in the North say that they winter well and do not dwindle in the spring as do the Italians or their crosses; and, besides, they are gentler, and will stand more abuse and neglect. I have always found them good, even under the most adverse conditions.

CHARLES W. QUINN.

Houston Heights, Texas, Nov. 11.

One of the illustrations is a snapshot of our first Caucasian yard along with some other races and strains of bees which we had under test side by side. The result of the test was that the Caucasians had more to their credit for our purpose.

The other view shows the corner of the same apiary and three beekeepers who had just finished examining all of the colonies in the yard for the purpose of ascertaining which strain of bees was giving the best results. The Caucasians scored the highest number of merits.

The man standing on the right is Mr. English; and the man in the middle is the late Mr. Herlong, both extensive beekeepers of Florida who also adopted the Caucasian bees and found them superior. The writer is standing at the left.

Cordele, Ga.

A MOST HANDY APIARY WAGON

BY LOUIS SCHOLL

After having used a handy wagon that is well suited for almost all purposes in an apiary, it is hard to understand how a beekeeper can really get along with any other kind of wagon with which to do his hauling. Planning to haul bees or hives, supers, or cans, on a farm wagon or with only a small spring wagon, caused many a hes-

itation before the hauling was finally done. With our big handy wagon, all there is to do is to hitch up to it and then load and do the hauling, no matter where and when.

The group of pictures shows a full platform spring wagon with a capacity of from 2000 to 3000 pounds at a load. The bed is entirely flat, like that of a large float, 14 feet long and 48 inches wide. It is provided with removable stakes which can be put on in a few minutes. The wagon runs so easily that there is hardly any jarring of the load, and it is not necessary to do any tying to keep the load from falling off. This makes the wagon especially well adapted for hauling bees, and also for hauling large loads of supers with the foundation already in the frames. The bed is long enough to accommodate two rows of ten-frame hives, making 20 in a tier. A double-deck load of forty colonies can be hauled with ease with a team of two animals, and the entire load hauled on a trot on good roads. This enables one to make quick moves of an entire apiary in short order and without the usual disagreeable troubles about packing and joggling with unsuited wagons. All that is necessary in the case of moving bees is to set the hives on, placing them back to back, with the entrances out, preferably, so that these can be watched and be easily accessible in case of leaks. It is very easy to unload from such a wagon also.

For hauling our bulk comb honey from the yards, this wagon has proven very valuable. In the pictures the wagon is shown right beside the apiary fence in two places, with the wagon-bed entirely empty in one case and a wagon-cover on another. The supers are loaded right over the fence on to the wagon from the apiary as soon as these are taken off the hives and freed of bees. By loading them three tiers high, 60 supers are loaded on, making a load of about 2400 pounds. The whole is covered over with the wagon cover or sheet as soon as the honey is loaded on, and tied at each end as shown in the two lower pictures. In the two upper pictures the unloading is shown right from the wagon into the honey-house. In one the large screen-door is wide open; but in the other only a small opening is left (because of robbers), through which the honey is passed to a man inside.

In another picture the wagon is shown with the stakes in place for hauling covers and bottoms and other bulky things without having to tie any thing with long ropes. By going from one yard to another, any thing that is needed at any particular one can be taken out as needed, without useless untying of ropes, etc.

It will be noticed in all the above pictures

that the horses are not attached to the wagon, except in one instance. In this one the driver has just arrived at an apiary and is unhitching to take the team aside to a safe hitching-place. Always do this, since there is no telling when the bees might sting the team and cause considerable trouble and disaster. Especially should this be watched in time when bees are robbing badly.

To get the load away from the apiary when bees are robbing, and it is not safe to hitch direct to the wagon, a long stout rope is used to which the horses are hitched. This has a large hook at the other end, which is hooked to the end of the wagon-tongue, and the load is pulled to a safe distance from the apiary, where the team is then hitched to the wagon.

New Braunfels, Texas.

SHIPPING FRAGILE ARTICLES

Some Advice from One who has had Experience

BY JAY W. GEE

Inasmuch as the writer's first knowledge of GLEANINGS, and a subsequent interest in the bee industry, was a direct result of a broken case of bee supplies it may not be amiss to repay the debt to the fraternity by giving my experience in the transportation business, covering about ten years. Some years ago I was agent for a railway at a point where a heavy transfer business was done, from five to twenty cars being handled daily. There was a white foreman who checked the freight, and had the general supervision of the platform; but all the trucking and actual handling of the shipments was done by a gang of negroes, all of whom were illiterate. It was not possible for me to be on the platform every day; but I would make an inspection as often as possible. One day while looking over the situation I found quite a pile of curiously sawed little sticks lying by themselves around a post, with no case near, no mark on any of them, and no possible way to connect the sticks or make any thing out of them.

I called one of the boys, "Tom, what's this you have here?"

"Fo' God, Cap, I dunno. Yistiddy when us wuz unloadin' the St. Looie cah, Pete, he dun drap a box frum the flatfom an hit bust wide open, an all them sticks come out. Us wuz goin' to put 'em back, but the boss lowed 'twont no use, fur some feller had jess put em in dat air box fur trash to get rid of, an Pete say dey sho would make good kindlin', an' dun bunn bout haff ob 'em dis mawnin'."

There was a little magazine lying near which I put in my pocket for future reference; for I am like the ancient Athenians in one respect at least—always on the alert to learn some new thing. The little sticks found their way to the stove; and a few months later, after I had perused the little magazine—GLEANINGS—and some other bee literature, the mystery of the little sticks was solved. The railway company had unintentionally used a nice lot of frames and other fixtures for stove kindling, and in due course paid the claim, I suppose. The shipment went beyond me for final delivery, so I can not say as to that. If there is a moral to this particular incident, I suppose it is that the various railways of the country should have all their employees take a course in bee culture, and so reduce the amount of their annual claim budget by avoiding a recurrence of such mistakes in the future.

Now, you old-time beekeepers need not be amazed at such gross ignorance outside of your ranks. The biggest part of the losses that the railroads and the public sustain is caused by the ignorance of one party of the methods and working tools and parts of the other. This is not any disparagement to any one, either, for in one short life it is impossible to master all the details of every calling, trade, or profession.

The purpose of this article is not to urge the use of any system in behalf of such system by reason of any interest of mine in it; but it is purely a matter of information that may be of help to some of the many readers of GLEANINGS.

Before I began working for the railroad I spent two years in a postoffice of the third class on the main line of one of the trans-continental railroads in Oklahoma. The biggest part of our mail was put off from the through trains. There was a grade just beyond our little town; and in order that the heavy trains might cross it without stalling they had to go at full speed by the station. When the sacks were kicked from the mail-car they would sometimes fly thirty or more feet away, and it was not safe to be in their path. It was a sickening sight, sometimes, to go through these sacks and to see the condition the contents were in. I remember one Christmas morning in particular, when the sacks were dumped on our work-table, there was not a single package intact, the whole being an indiscriminate mass of doll limbs, scalps, dresses, tin soldiers, wrecked cars, and the like. Whether the practice yet obtains, I am unable to say. Of late I have received several fragile packages by mail from long distances without damage; but the outer packing had not been

crushed. I have noticed several reports in the papers since the parcel post has been in operation, where eggs have been sent through the post and have been broken.

The cause is not hard to find. The post-office officials have not yet made sufficient arrangements for the handling of this business; and until the Department is fully prepared to take care of all kinds of business it would be better for the public to use a safer method than the open mail for fragile matter. To label a package "With Care," or "This Side Up," is absolutely useless, as few ever see it, and fewer pay any attention to it when they do see it. A swift glance at the address, and flop it goes into the sack it belongs in, whether a foot away or ten. Registered matter receives better treatment, being handled personally from one clerk to another. In a few years, when the express business is owned by the government or supplanted by parcel post, all parcels will be handled with the care that they deserve, and that they now get from the private express companies.

Handling fragile matter by freight, whether by carload or less, is still more unsatisfactory. Of late years the railroads have been burning their candle at both ends—through no intent of their own, be it said, but because it has been forced upon them by federal and State laws. Rates have been reduced, and no prospect of any advance, while every item of railway operation has steadily advanced in cost, especially material and labor; consequently every manager, every superintendent, and every boss of every kind, to hold his job has to exert eternal caution to keep expenses down. The usual devices are to cut labor, hours, materials, and improvements. Where special knowledge is not required, the very cheapest labor is used. In the South that means negroes; in the Southwest, Mexicans; in the East, Italians or other foreigners. Now, what is the result when your case of honey is marked "Glass"? The inscription is never read; and if it should by accident be read it receives absolutely no attention. A car holds just so much. In time of a car famine every available piece of freight is put in, and seldom with regard to any consideration except to fill space. Of late some of the systems have been making an effort to remedy the careless loading of freight in an effort to cut down the enormous amounts being paid for claims, but the progress is slow.

But suppose that the case is properly loaded, or that there is a carload shipment. Dynamite used to be handled indiscriminately with other freight, and the loss of life was so great that the federal government

had to step in and regulate it, with the result that last year there was not a single death from this cause in the whole United States, so a federal inspector recently told me. Every case of dynamite or other explosive now has a big red label on it. It is braced in the car so that it can not move, even if the car is wrecked and turns over. Nothing that can easily catch fire or explode is allowed in the same car. Furthermore, the car is inspected, large tags are put on every side, and the car placed in the safest part of the train.

Now, if all this can be done for dynamite, why can not something similar be done for honey? It is worth taking up in the next national convention. Suppose that a certain color, whether painted on or pasted it makes little difference, be used on the tops of all honey-packages, a regular system of bracing be agreed upon, and, in the case of carloads, placards be put on the outside of the car to let switching crews know the fragile nature of the lading. Too much should not be asked of the roads, as a raise in rates would follow; and whatever is agreed upon should be with the understanding that the shipper be required to furnish every thing, and perform all the extra labor incident thereto. I add this because it will be useless to ask any railway management at this time for any thing that will add any expense to their burdens, which are already too heavy.

To be continued.

Drones from Drone-layers; Are They any Good?

I have some fine Golden queens that I raised from a breeding queen last fall, and they did not mate. Now they are laying drone eggs. Will those drones reared in drone comb be all right to breed queens to? Kendallville, Ind., March 31. O. P. ELDRIDGE.

[Drones from drone-laying queens are not generally regarded as the equal of drones reared from ordinary normal queens. A good many doubt whether they have any potency at all; but it is generally believed that they are better than no drones. If a virgin queen were fertilized by one of these drones the probabilities are that the result of that mating would not last as long as though she had been mated with a drone from a normal queen.]

Drones from queens that have formerly laid worker eggs, and yet later lay only drone eggs, are good. We have used them extensively, and have reason to believe they are all right.

However, we are frank to say to you that no scientific experiments have thus far been conducted to prove whether drones from drone-laying queens are the equal of those from the ordinary average queen. Possibly the Bureau of Entomology, Washington, D. C., may find its way clear to give this matter investigation. Microscopic examination of the seminal sacs of the drones from drone-laying queens and drones from the ordinary normal queen would doubtless show whether the former had as many spermatozoa as would be found in the other drone. Ed.]

Heads of Grain from Different Fields

Extracting Close and Feeding; the Price of Beeyard Labor

With our plan of producing extracted honey, the bees and brood are kept together throughout the season. At the last manipulation the queen with a small patch of brood is put into the lower story with an excluder over it; and all the surplus chambers, filled with the brood and empty combs, are put on over the excluder. With this plan the brood-chamber never becomes clogged with honey; and the question is, What is the best method to employ in getting winter stores to a colony? Whenever we believe the last honey gathered from basswood to be ripe, we begin the work of extracting. When the supers are taken off, the brood-chambers have all the way from a very little to about twenty pounds of honey in them. In this locality the flows following the basswood run barely supply the daily consumption of a colony.

Our object in writing is to learn if our method of carrying a colony over into the next season, to a time when the bees can gather what they consume every day, is as practical and efficient as any that could be employed, so far as feeding is concerned. By exchanging combs with the bees we aim to supply our lightest colonies with at least ten pounds of honey at the time of extracting, and two full combs of honey are set aside for next spring's feeding. Early in September we begin the work of feeding up for winter, with a feed made up of the following proportions: boiling water, 1 part; cane sugar, 2 parts; 1-3 as much honey as water. We are well equipped with large feeders that hold more than any colony will ever need for winter stores. The wagon, used for transporting the feeding outfit, is arranged to carry 100 feeders, the necessary sugar, honey, and a water-heater of 160-gallon capacity. The capacity of the heater allows the heating of sufficient water to make feed enough for an apiary, and still leave room for a rack which can be set at varying heights from the bottom of the boiler, and on which the five-gallon cans containing the honey for feeding can be set and heated. By means of a large gate, boiling water is drawn from the heater into a large mixing-tank, and the honey and sugar added. The feed from the mixing-tank is also drawn, by means of a large gate, into large graduated pails having large snouts to facilitate pouring the feed. The water is put on to heat, and is ready for use by the time the feeders are on the hives; and, with two men working with a vim, a large number of colonies can be fed up in short time.

Colonies run for extracted honey are always in more or less need of winter stores; and to supply this want by giving them combs of honey in the fall seems impractical to us, therefore we adopted the plan outlined above. Then, too, we can buy sugar of excellent quality for feeding purposes at \$1.50 below retail prices. We use powdered cane sugar that is swept up on the floors of the sugar-mills. This sugar is free from dirt, but contains about one per cent of starch.

We are great believers in an abundance of stores; and your candid opinion, on our method of supplying winter and spring stores, will be cheerfully received. We could have given you a great deal of detail, but did not think it necessary. This will be the first season when we shall have to employ outside help; and as we are not posted on the wages beekeepers have to pay, we should like to ask you in regard to this also. What wages could an intelligent, trustworthy man who works steadily with the speed of an average person, and who can do very satisfactory work of all kinds in the workshop, and carry out any kind of orders in the beeyard, but who has not had sufficient training to take the initiative, be paid

per month, including good home, board, and washing, in a locality where farm hands receive \$30.00 and dairymen from \$35.00 to \$40.00 per month? Again, how much more per month can a beekeeper demand than a farm hand, other things being equal?

E. L. HOFMANN.

Janesville, Minn., March 25, 1913.

[The plan outlined seems to be correct so far as we can see. There are only two ways by which you can supply a colony with stores after extracting. One is to equalize stores by changing combs, and the other is to feed. But in your particular case it would be more practicable to extract close and then feed.]

Your method of feeding seems to be all right; but did you ever try the plan of making up the feed at home, and pouring it into 60-lb. square cans? A wagon is necessary to carry your melting-apparatus, sugar, and honey. You can carry all the syrup you need in square cans unless the yard is very large. By so doing you will need to carry only one-third more of the actual bulk in water. It sometimes transpires that it is inconvenient to get water at an outyard. If there is a dearth of honey it is impracticable to make the feed at the outyard, any way. However, we employ both methods, making the syrup at the yard; but more often we find it convenient to carry the syrup, and then it can be given to the colonies while hot.

The question of beeyard labor depends somewhat in outside labor, as you suggest. A competent man in the yard, one capable of going ahead alone, who knows how to put colonies in condition for a harvest as well as extracting and taking off comb honey, will command about double the price of ordinary labor. In some cases you may have to pay three times as much. A thoroughly competent man who can manage a series of yards so as to make money for his employer is hard to find, for the reason that, if he can earn money for the other fellow, he will prefer to be his own boss, and make the profit for himself.—ED.]

Uniting by the Alexander Plan Not Always a Success; Mating Queens from an Upper Story Generally a Failure

Is the Alexander plan of placing weak colonies over strong ones in the spring for the purpose of building up, a recognized success? Is anybody getting virgin queens mated in the second story over a queen-excluder? With me, both schemes are failures. Last summer I got lots of queens hatched in the upper story (over queen-excluders), but not one fertilized. In less than a week they disappeared.

This spring I put weak colonies over strong ones—i. e., Alexander's plan. Four days later I found queens of weak colonies all right, with a big force of bees. Two weeks later I found no eggs, no unsealed brood, no queen, except in one instance, where the queen of a weak colony was doing fine work; but the queen below the excluder had been killed.

Dixon, Cal., March 17.

J. T. BOWEN.

[The Alexander plan of uniting is not a success in the hands of every one. Some have succeeded very nicely with it, while others have met with failure. In some instances, at least, this failure is due to the fact that the directions given by Mr. Alexander have not been strictly followed. For example, he specifies that the two lots of bees—the weak and the strong colonies—should be put together, one on top of the other, very gently, so as not to disturb them. If too much smoke is used, or if the bees are disturbed, the queen in the upper hive will be destroyed. It is also very important to have a little brood in the upper story. If the nucleus is so weak

that it has only a few bees and the queen with no brood, the plan can not be made to work unless another frame of brood and bees is added to it. For full particulars on this plan of uniting see "Uniting," in our A B C and X Y Z of Bee Culture.

The plan of having virgin queens mated from the upper story of a strong colony generally results in failure. It sometimes works, however, during a light honey-flow. Even Mr. Doolittle himself does not advocate it now except under certain conditions. In any case the average beginner will succeed very much better by having his virgins placed in separate hives by themselves.—Ed.]

How to Know Honey-dew

Some are inquiring how to know honey-dew. If honey-dew is heated, there will be a scum about two inches thick. Skim this off and continue heating, and it will keep on throwing up froth indefinitely. If boiled, I fancy it will all go to froth.

If bees can have a flight once a month they will winter on honey-dew. When one-third of my bees died with it in the cellar, a few years ago, I uncapped the combs in the spring and gave them to the bees, and they built up finely on the "bug-juice." It is dangerous only when bees can not have a flight. If any beekeepers find that their hives contain honey-dew, and they are in the cellar I would advise them to carry the bees out the first day they can fly, and again in not more than one month's time.

Islington, Ont.

J. D. EVANS.

[We might suggest that there is some honey that will throw up froth after boiling, as well as honey-dew. We do not, therefore, believe that the rule suggested by our correspondent is infallible. The best test is the one of taste and color. While there are some honey-dews of fair quality, the most of them are very inferior, not to say nauseating, having a dark color, or purplish black. Nearly all honey-dew honeys have a sort of flavor that is common to all, although there is a honey-dew from Hawaii that does not taste like the American article; it reminds one more of New Orleans molasses. Chemically, however, it has the same qualities as the American product.

It may be true that bees can be wintered on honey-dew if they can have a flight once a month; but sometimes a winter will come when they can not have a flight for three months. For that reason we strongly advise extracting all honey-dew and feeding sugar syrup in the fall, for all localities north, we will say, of the Ohio River.—Ed.]

Best Time of Season to Requeen

I notice reports from different sections, of bees using up stores in early breeding. Not so, however, in this locality.

We look for a bumper crop of honey this year. The prospects are the brightest for it that I have ever seen. There is more white clover than there has been for a decade.

I have a few two-year-old queens that I should like to replace with young ones. What would be the best time to do this—at the beginning of the harvest or near the end of it?

Mr. DeMuth, in his article on comb honey, recommends the dequeening of colonies that are preparing to swarm, and letting them rear a queen or giving them a laying queen in ten days or two weeks. Will the bees work with as much vigor during this period of queenlessness as they would otherwise?

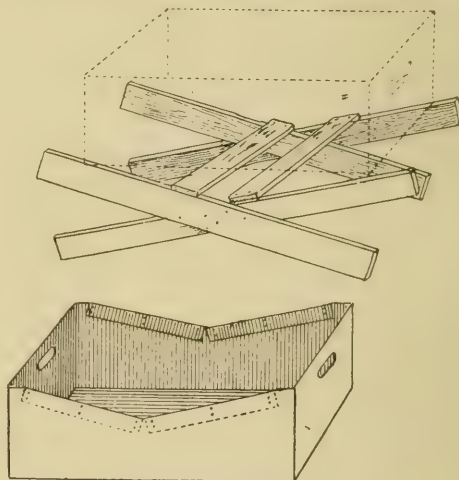
Weston, W. Va., March 3. ADDISON GOULD.

[Mr. DeMuth is about right in his suggestion concerning requeening. The best time to raise queens is during the swarming season, when large swarm-

ing-cells can be secured from colonies that are doing good work in the supers; for we would not use even swarming-cells unless from a colony of good workers. Removing a queen, however, in the height of the honey-flow, has a tendency to check slightly the activity of a colony; but if the colony can have a vigorous virgin coming on, it will work almost as well as if it had a laying queen. But there will be danger that it will swarm out when the virgin takes her wedding-flight. As a general thing, however, where one has to buy queens he will find the best time to requeen is along in July and August, when queens can be secured at a low price, and when the interchange of queens will cause no interruption to the colonies. Then we always like to have young queens in the hive in the fall. Such queens will lay in the fall when old ones will stop laying entirely. A lot of young bees in September and October is an important factor in good wintering.—Ed.]

A Super-rest

I am sending a drawing of a simple article which I find very convenient. I call it a super-rest. The upper drawing shows a sawhorse arrangement which is easily made by any one. The lower drawing shows a box which is about as simple to make, and will hold smoker, tools, etc. The upper one shows a super



in place. The two ends of the holder should be about 16 in. apart. I find this a great help when examining hives, as I can place this near the hive, usually in front, and set the super or supers on it. It saves crushing bees, and your super will not fall over as they will do when set on end.

Mystic, Ct.

ELMER E. WAITE.

Honey Crop Practically a Failure in Australia

The honey season in Australia can be written down as a failure so far. While there have been isolated instances of good yields, the record generally is none at all, and bees dying or doing very little. There is a great shortage of pollen; and unless this alters very materially during the next six weeks the mortality of bees during the coming winter will be very great. The whole failure has been due to drouth; and now the rain has come, and the weather prophets say we shall get wet weather for another six weeks, or until the end of March. If this proves true, the outlook is not bright, because the season will be at an end by then in all places except the northeastern portion, where a flow from ti-tree can be expected.

Some beekeepers have lost all their bees, and some a portion through what is generally known as the disappearing disease. It is a sort of dwindling disease where the hive is left often with three or four frames of brood and plenty of honey, but no bees. I have never examined any of these hives to see if they had a supply of pollen. If not, that would account for the whole trouble. I will follow this matter up if I get the opportunity, and see if it is pollen shortage.

MAJOR SHALLARD.

South Woodburn, N. S. Wales, Feb. 10.

How to Inspect Hives for Foul Brood when Robbers are Bad

Please state how to inspect an apiary of several hundred colonies of bees all in a rush by inspector, preparatory to moving to another State before the honey-flow. This you said not long ago is easily done without starting robbing. I have never found any way yet. A tent helps but little.

New Plymouth, Idaho, April 4. J. O. BAIRD.

[If you are at all troubled with robbers, or if you desire to do your inspection work at a time of year when they are hovering about the hive, you will find it very slow work, and somewhat dangerous too, because a single robber can carry the infection to its own hive. Under such conditions we do not know of any thing better that you can do than to wait until a day when it rains just lightly enough to prevent robbers from flying, and at the same time allow you to open the hives and inspect every inch of the brood in the combs. A light rain does not interfere with the work, except that the bees are a little crosser. You will have to use a little more smoke; but when there is a light rain on, you can work much better than you would naturally suppose. If you can't wait for it to rain we would suggest that you work after dark. Get a small acetylene bicycle-lamp. Start it to going, and then have an attendant hold this lamp so it will shoot its rays right on your frames of brood that you are examining. You will find that you can work at night much better than you would naturally suppose. No robbers will bother you at this time, and you can examine every inch of brood. Of course, we should very much prefer daylight, because there is nothing equal to that kind of light for inspecting suspected brood. Looking over a whole apiary to inspect foul brood is a very slow operation, for the reason that every bit of comb in the hive must be thoroughly examined if there is any brood in it to see whether the brood has any diseased cells. Even suspicious cells must be examined carefully to see whether any diseased matter is below the capping. This kind of inspection work takes a great deal of time.]

We remember once spending nearly an hour looking over a hive where we thought there must be foul brood because we could smell it. We could find nothing of the disease, and finally we saw one suspicious cell that was capped over. With a pin we raised the capping, and, sure enough, under it we found a typical case of dead larva from foul brood.—Ed.]

Mold in Double-walled Hives and None in Single-walled

I have been raising bees for several years, and, I am glad to say, at a profit. Last year I began using some double-walled hives, and upon opening one lately I was surprised to find the lower half of six of the ten frames moldy, and forsaken by bees. The upper half was filled with honey capped over. The bees were crowded to one side of the hive on four frames which were partly filled with honey and new brood, which showed the queen was all right. The hive had plenty of bees in it for this time of the year; in fact, it was the strongest colony I had examined this spring. On the bottom-board there were about a handful of dead bees lying in a certain

moisture that was too thick to be called a puddle. Now, was this moisture caused by sweat? and did it cause the comb to mold? What I want to find out is whether the moldy combs are fit to be left in the hives, or should they be destroyed and hives furnished with new frames? I found upon further investigation that all the double-walled hives I had bees in had one or two moldy frames, while several of the single-walled ten-frame hives I have looked into are free of any mold.

Baltimore, Md., April 3. MARK R. DELAHAY.

[This mold will do no harm—in fact, we are apt to find it on the combs of strong colonies just after a spell of long winter confinement. The probabilities are that the colonies in your double-walled hives were stronger than those in the single-walled. If that were the case it would be easy to account for the presence of mold in the former and not on the latter. In our climate a colony in a single-walled hive will dwindle down and become comparatively weak, while in a double-walled the colony will hold its strength and sometimes be stronger in the spring than in the fall. However, it is a fact that most colonies wintered outdoors are not quite so strong in the spring as they were the previous fall. Now, then, if your colonies in the single-walled hives were weaker than in the double-walled hives, it would be very easy to account for the presence of mold in the former rather than in the latter.]

Yes, the moisture is caused by the breath of the bees. Where there is a large powerful colony in a hive it will send out considerable dampness. This strikes the cold air at the entrance, and condenses and runs down the bottom-board. In a single-walled hive a colony will not be as strong, as a rule, and not strong enough to send out much moisture; and the consequence is, there will be none found in the hive.—Ed.]

Honey for Making Labels Stick on Tin

On page 232 you recommend dextrine for pasting labels on tin cans. By your recommendation I purchased some, but found it worthless to stick on tin. I use a flour paste mixed with equal parts of honey and water, which sticks a label on tin so it is impossible to remove it without soaking. Use a light honey, as dark honey will stain through the labels after a time.

Grosvenordale, Ct., April 5. ERNEST RYANT.

[There is a great difference in dextrine. Some will give good results and some will not. Perhaps, however, a common paste made as you describe, with honey in it, will be the equal of any thing. A good many have spoken of the value of honey as an ingredient in any kind of paste or mucilage for sticking labels on tin.—Ed.]

Antics of Pollen-laden Bees

In the spring of the year when the bees are gathering their first pollen, the pollen-laden bees will come to the entrance of a hive containing a colony with a queen, and enter the hive hurriedly, as if they had been sent for. Some of the pollen-laden bees will go to the entrance of another hive, and will almost enter. Then they will come back out again, and then take wing, doing this repeatedly—sometimes entering the hive, but always coming back out again after a time, as if they were searching for something. That colony is queenless, without a doubt.

BEES SWARM IF THEY THINK THEY ARE CROWDED.

Bees will positively never swarm if they think they are not crowded for room. The facts in the case have nothing to do with it. They might have an abundance of empty combs in the supers, and get it into their heads that they were crowded for room in the brood-chamber, and swarm.

Jonesboro, Ind., March 12.

C. A. NEAL.

Capturing Swarms from Limbs of Trees

Last Thursday, June 22, I was spraying my apple-trees. Early in the afternoon I became aware that a swarm of bees was near. I heard them some time before I saw them. As soon as they came in sight I threw my old straw hat among them three or four times, and then began to throw dirt. After following the swarm as far as the river, the bees seemed to stop for a moment in the air, as if uncertain, then swung to the right and clustered on the limb of a sycamore standing on an island in the river.

While they were settling I went after a twenty-foot ladder and a saw and smoker. The ladder was long enough to reach the first limb of the tree, but I found that the limb above it was just beyond my reach. By walking out on the first limb, however, I found that I could swing over to a small tree, and, by climbing that, I could reach the second limb of the sycamore. I then went up without any trouble. I discovered that the tree was hollow, and that the main crotch was open. The bees had settled there, and I could touch them by reaching down my hand the length of my arm.

I first tried to smoke them out, but they did not respond to this method of treatment; so I called to one of the neighbors, whose house was near, asking her to telephone to my wife, directing her to bring me a brace and bit. By making use of these new means of warfare I bored a $\frac{3}{4}$ -inch hole below them, and they began to move. I then placed a small box in the crotch of the tree; but the bees sought refuge in flight, and clustered on a good-sized elm, away out on a large limb, ten feet beyond reach.

I tied some twine around the limb and sawed it off. The bees then clustered in two places—one section in the top of a small group of maples, the other on still another large limb of the elm. I sawed the large limb off; and when it struck the ground the bees joined their companions in the top of the maple-tree. This was within reach of my ladder, so I found it an easy matter to cut off a few small limbs and hive the bees.

The next day one of our neighbors telephoned that there was a swarm of bees in their dooryard, which I could have. In the evening another neighbor reported that a swarm of bees had alighted on their cornfield fence, and that if I wanted them I could get them and pay whatever I thought they were worth. I found them on a rail. They seemed to be at work, as they were flying to and fro. After I have hived them I found a very little comb on the rail.

Union City, Mich.

JOHN L. SWAN.

[Much of the nuisance of climbing trees and chasing swarms a mile or so crosslots can be avoided by clipping the queen's wings. However, it sometimes happens that a swarm will go out with a virgin from a cell that has escaped notice, and then there is nothing to do but to go after them, whether they may be up a tree or across the fields. If any one can invent a process for getting a swarm out of an inaccessible place on a high limb, he ought to be awarded a gold medal. It is sometimes nearly worth one's life to climb a tree, to say nothing of getting the swarm and bringing it down after securing it; and some swarms, after they are captured, are very ugly. When the limb is in the right position, one can slip a bag up under and around the swarm, tie the bag around the limb, and then let the limb down. But more often the swarm is located out on the end of a branch where it is impossible for any human being to go. To saw the limb off has a strong tendency to dislodge the bees; and if the limb is a large one it can not be handled, even after it is cut off. All of this emphasizes the importance of clipping, or using drone-traps; but clipping is much to be preferred. —Ed.]

Bees Wintered Outside Have Opportunity for Early Flights when They Can Get Pollen

In GLEANINGS for April 1 some one asks why it is that bees commence brood-rearing so much earlier when wintered outdoors than when wintered in the cellar; and also asks if it is not because of difference in temperature. Allow me to suggest that it is not due so much to difference in temperature as because of other conditions. Bees wintered outside, if they have opportunity for flight, are more vigorous than when wintered in the cellar, and will be likely to commence brood-rearing sooner. And, again, with a very late winter flight or a very early spring flight, they may secure more or less pollen, which is an inciting cause of brood-rearing.

If bees are taken from the cellar in February, and given a good cleansing flight, and then returned to the cellar again, I think that brood-rearing would be started as soon as though they were wintered outdoors.

Evanston, Ill., April 3. WM. M. WHITNEY.

[It does not always happen that outdoor bees will have more brood in early spring than those that are wintered indoors. Last winter our inside bees reared brood earlier, and had more of it when set out, than the bees outdoors. Why it was so will be discussed at a later time.—Ed.]

Bees Working on Shorts as a Substitute for Pollen

I have been much interested in watching the bees gathering shorts, for, or in lieu of pollen, my bees have been foraging in the stables all over town the last few days after the ground feed. Several persons have told me that there were so many in the stable that they thought there was a swarm. To-day I placed some shorts in a pan in my beeyard, and some of the bees soon found it. They seemed to be afraid to alight on the feed—at least so I thought, but I found they would fly down into it and gather all they could in their mandibles and on their feet, using their feet to push the shorts into their mandibles and on their tongues, which latter were extended all the time. They would then rise up an inch or two, and with their feet brush off their mandibles and tongues, and pack the material on the pollen-baskets on their hind legs, repeating the operation till they had a load. They were not still an instant, wings and legs working rapidly all the time.

I have often wondered how they could pack the dry meal on their legs; but they seem to moisten it with their tongues, and then pack it on, using all their legs in doing so. I have never before had occasion to furnish my bees with artificial pollen; but we are having summer weather just now, and there are few flowers in bloom, so the bees are ravenous for some substitute for pollen.

Nederland, Texas, Jan. 23.

J. H. WEEKS.

Origin of Custom of Beating Tin Pans when a Swarm Issues

With reference to a recent statement in GLEANINGS about the practice of making a noise with pans, etc., when swarms are on the wing, and the origin of the custom, allow me to say that this is a relic of an old English law which says that any beekeeper, by giving notice to the public in this manner, has a legal right to follow a swarm wherever it may go so long as he can keep the swarm in sight. If, however, the beekeeper loses sight of his bees after giving this warning, they become the property of the person on whose land they alight.

J. C. BOOTH,

Second-class expert of the British Beekeepers' Ass'n
Rensselaer, N. Y.

Our Homes

A. I. ROOT

Be ye clothed with humility.—I PETER 5:5.

Blessed are the meek, for they shall inherit the earth.—MATT. 5:5.

Charity is not easily provoked . . . beareth all things, believeth all things, hopeth all things, endureth all things.—I COR. 13:7.

When I first began reading the Bible with an enlightened conscience years ago my good wife was often shocked and almost alarmed because I not only smiled but sometimes laughed outright. The good woman had been brought up to look at the Bible and every thing pertaining to it as something so sacred and solemn that one should not only look sober, but grave and serious when consulting its pages. Some of you may remember that years ago one scarcely smiled in prayer-meeting; and to laugh outright there, would have been considered a grave breach of etiquette. Things have changed. Well, I think it was when I was reading the "beatitudes" that I laughed, especially when I came to the 44th verse of the fifth chapter of Matthew, where we read, "Love ye your enemies; bless them that curse you, and do good to them that hate you," etc. The thing seemed so unnatural, and I do not know but it seemed to me then so *utterly unreasonable*, that I laughed outright at the new presentation of this wonderful truth. I soon put it in practice, or tried to do so, and the older readers will remember the victories that I achieved by following out the teachings of that chapter. One would think after these years of experience along this line that I, A. I. Root, the author of these Home papers, would not be likely to be ensnared, especially in the 73rd year of his life, after having taught the doctrine of returning good for evil for close on to forty years.

I am going to tell a story of my conflict with the enemy in two different ways; and I shall try hard to make both of them truthful. It occurs to me right here that I want to ask grace and wisdom from on high while I tell my little story. May I be clothed just now with that garb of humility mentioned in our first text, even if that garb was allowed to drop off and be trampled in the dust for a little time.

I think I have mentioned before in these pages that some of the boys in Bradentown had a fashion of hanging on behind my automobile. At first I did not mind it much; but when too many of them hung on, it hindered progress and I ordered them off. Mrs. Root asked me if I was not a little harsher in my demand than the occasion required. I replied that it was an outrage,

and that nothing but severe talk would make the boys behave. Later on, when I had a flat tire they loaded down the machine so the engine could scarcely pull it. At this I ordered the boys off the vehicle, and told them to get clear away, and in terms not very gentle. A good many times I put on speed and ran away from the boys; but after dark they would slip up unnoticed; and before I thought about the cause, I imagined there was something wrong about the machinery. Finally one night on my way to prayer-meeting, when I was obliged to slow up on account of some piles of material for repairing the road, they stopped the machine entirely. They not only got hold of the springs behind, but they grabbed hold of the wheels, stopping the machine so I had to crank it to get under way again; and as soon as my attention was taken up by running they stopped me again. I threatened to have them arrested, but they replied by shouts of merriment.

I got to meeting late. My conscience began troubling me; but I defended myself by saying that the good of the community demanded that the boys be arrested for laying hands on my property and interfering with my free passage of the street. I consulted neighbor Rood, who is a fairly expert attorney (or has been), as well as market-gardener, and he is also superintendent of the Presbyterian Sunday-school. Friend Rood declared it was an outrage. He said the only thing to do was to get the boys' names. I told him that none of them would give me the names of the ring-leaders. He said if it were himself he would get out and "chase them down." Said I, "Mr. Rood, have I the legal right to lay hands on any of these boys, even under such circumstances?"

"Mr. Root, I would chase them up, and lay hands on them without any regard to the law."

I think he added something more; but my conscience began to utter a vigorous protest. I think that the little alarm-bell I have told you about in times past began to ring out pretty vigorously, to the effect that A. I. Root, who writes these Home papers, would be sadly out of place chasing schoolboys, even if they did run out of the schoolyard to annoy him in passing along the street with his automobile.

I went home and prayed about it, and asked the dear Savior in plain words if I should chase the boys. Almost before the

words were uttered the answer came, strong and distinct, "No."

"Dear Lord, shall I complain to the sheriff about the boys?"

The answer came clear and plain as before, "No."

Once more, "Shall I scold them or threaten them with arrest?"

Again came the decided "No."

At this point I asked Bro. Rood another question:

"Mr. Rood, do you know or have you heard of the boys interrupting or annoying anybody else who drives an automobile on our streets? I suppose there are a hundred of them or more in and around Bradentown. His reply was, "Mr. Root, I have never heard of their interfering or interrupting anybody else."

I told him that this pointed out the fact that I was at least *partly* at fault if not entirely so; and I went home to consider the matter. Shortly after, I ran on to the following in the *Sunday School Times*. Read it, and see if you can catch on to where it hits your case.

TRANSLATING COMMONPLACE TRUTH.

When any truth seems commonplace to us it has lost its power for us. How can that power be restored or discovered? Coleridge gives the secret when he says: "To restore a commonplace truth to its first uncommon luster, you need only *translate it into action*." "Blessed are the meek" is one of the familiar promises that often has little appeal; but how it bristles with surprises and with power when it is turned into action! Every promise of the word may be found to contain the life-giving Spirit of God when it is translated into the uncommon language of life.

Let me now tell my little story again, relating some facts I have neglected in the above.

Years ago, when I got my first automobile, or "Oldsmobile," rather, it had a back seat; but the passengers on the back seat were obliged to ride backward. To get on this back seat there was a step not very far up from the ground. To get on to this step there were iron rods to grasp hold of on each side. Now, this back step was exceedingly handy for carrying parcels, merchandise, etc., and we liked to use it for that purpose. This back step was removable; but when we tried leaving it on all the time we soon discovered that it was a great temptation to mischievous boys. Even when going at considerable speed a boy could grasp hold of the iron rod and swing on to the seat. This sort of sport was attractive, because one could thus get aboard very much as a conductor dextrously swings on to the steps of a fast-moving train. The boys soon became very expert; and while here in Medina we left the step at home because the boys would load us down. I had

the machine shipped down to Florida. But I soon found that the boys in Florida were not particularly different from the boys in Medina. At first I wanted to be pleasant and good-natured to the boys, and permitted them to ride; but when it began to be too much of a burden for the old machine, I asked them to get off. Some of the boys heeded my request. Others did not seem disposed to move; and if they did get off, as soon as my back was turned they got on again.

In this way, and with an old machine, I educated the schoolboys to be ungentlemanly. When I got a new Sears automobile they recognized *me*, even if they did not the machine, and began climbing on behind. I finally scolded, and then threatened. I forgot my religion. My cloak of humility that I usually wore was neglected, and fell from my shoulders. Satan saw a chance, and he followed it up. There is an old adage to the effect that it takes *two* to make a quarrel. At first I defended myself by saying I was entirely right—the fault was *all* with the boys. Moses has been called, I believe, the meekest of men. Just once in his life he became angered, and forgot himself and his dignity before the people. He said to the grumbling children of Israel, "Ye rebels, must *we* now fetch you water out of this rock?" I, like poor brother(?) Moses, forgot the text I have been quoting to you for lo these forty years, and was quarreling with the boys. I think there is an old saying that goes something like this: "It not only takes two to make a bargain, but it takes two to make a quarrel." The boys were unquestionably rude and in the wrong; but I too had been rude and in the wrong or else there would not have been any quarrel. Let me digress a little.

Years ago, as our readers will remember, I was an enthusiastic truck-gardener—at least in an experimental way. One year my hobby was nice Hubbard squashes; and knowing from former experience of the fight I would have with the bugs I provided some square boxes, one for each hill. These were made by nailing four shingles together so as to make a square box. The thin end of one was tacked into the thick end of another; and these square boxes were covered with cheese-cloth, and kept in readiness one particular spring; but, lo and behold! the bugs did not trouble us that season—at least not one had been seen until a warm spell about the last of May. But one Saturday night, just about sundown, after my help had all gone home, a great swarm of bugs camped down on my precious handsome squash-plants. I rushed to the house,

and on my way I mentioned to Mrs. Root what had happened. She said something like this:

"Oh dear me! Is it not too bad that they should come Saturday night, and after your help has all gone?" But when I looked up and replied, with a smiling face, that "to tell the truth, *I was glad to see them*," she looked at me with something of the same astonishment she did when she heard me laughing, when I was reading the Bible.

"Why, dear husband, you do not mean that you are *glad* to see those swarms of bugs come here late Saturday night, do you?"

"Yes, my dear wife, I mean exactly what I say. *I am glad to see them.*"

I was anxious for an opportunity to test my proposed remedy, and it proved to be all I had hoped.

Perhaps I might tell you right here that, about the time I was having my tussle with the boys, our good pastor of the Presbyterian church asked me to lead the prayer-meeting on the following Thursday night. The subject he gave me was "Christian humility." Perhaps I startled some of the good friends on that prayer-meeting night by telling them the above story and adding that I was at that very time praying for grace to say to the next crowd of boys who came near, just as I said to the bugs, "Boys, *I am glad to see you.*" And I asked the friends to pray for me that I might have grace to say from the bottom of my heart, to say it truthfully, "Boys, I am glad to see you." I began to think, just as the time was nearing to go back to my Medina home, that no boys were going to come near. I realized that I had undertaken a big job. Just take a look at it. Suppose a gang of hooting and yelling schoolboys looking for fun somewhere should say, "Let's hold up that old gray-haired gent who wears a fur cap, and hear him scold. He does not know our names, and he can not harm us much any way."

Years ago, after kneeling with my poor friend Fred, whom I have told you about, on the cold stone floor of the Medina jail, and after poor Fred had prayed for himself, he took a look at that text I have been talking about—"Love ye your enemies; do good to them that hate you," etc. He said something like this: "Mr. Root, that may be all right. Perhaps it will work out as you say; but I tell you it goes awfully 'agin the grain.'" And Fred was right. It does go "awfully agin the grain" even to *try* to love our enemies; and I felt it when I approached the conflict. I told Mrs. Root I hoped the boys *would* test my Christianity at least once more; and I

told the honest truth. I did not want the boys to do wrong and be unceivl to the traveling public; but I did feel anxious to have an opportunity to show that I was a changed man—changed at least in *some* respects, as poor Jacob was changed after wrestling with the angel. The test came. The boys, three or four of them, with mischief in their looks, ran down and held on to the projecting springs at the back of my automobile, while two more of them grasped the wheels; but when I slowed up and looked at them pleasantly they were astonished. They had planned for harsh and severe words; but they had not planned for the soft answer that "turneth away wrath." When they saw I was pleasant, and had not a word of reproof for them, they looked at each other in perplexity. What could it all mean? They retreated a little, thinking that may be I had some firearms or something else. When they stood off a little distance at the side of the road I did not tell them in so many words that I was glad to see them. I feared they might think that it was only sarcasm; and the Holy Spirit instructed me that sarcasm has no place in the heart of one who is "clothed with humility," as in our text. I simply scraped up grace enough to say, "Boys, one of my tires is in bad shape, as you will notice. I expect to go north soon, and am trying to get along with it as it is until I go away. I do not believe you would willingly hinder me under the circumstances, would you?"

At this unexpected turn of affairs a little chap looked toward an older one who seemed to act as leader. He simply said, "Don't meddle with it, boys, any more." Then they turned and went away. Years ago I said, in considering this subject, that returning good for evil is a great *unexplored region*, and that the world had not yet even dreamed of what could be accomplished by heaping coals of fire on the heads of our enemies. I have taken a good deal of space to give full particulars of the above transaction, because it carries a tremendous moral. You see how easily I could have fanned the flame of hate. Inadvertently I had started the boys in this way of having sport at the expense of somebody else. I confess, my friends, it is a pretty hard pill to swallow, to treat such conduct as *fun*, and avoid stirring up strife. The boys had the advantage, because they could come up behind when I could not see them. They could have their fun under the cover of darkness. Having them arrested and put in jail might have aroused their bad feelings so they would have retaliated by cutting my tires or otherwise damaging my automobile. This

has happened more than once. Judge Lindsey, who has done so much for the boys in Denver, Col., by looking at things from *their* standpoint, has taught us some wonderful lessons; and these lessons are taught all over our land by great and good men who are stepping down a little, and standing beside the mischievous and fun-loving juveniles.

Just now our State of Ohio is discussing a proposition from the brewers to punish the boys found in saloons, if they are under age, instead of punishing the saloonkeeper. The latter entraps the boys, coaxes them into his place, and then these poor misguided boys would be fined and imprisoned for breaking the law while the saloon-keeper goes scot free. May God be praised that the evidence, as I now write, points to a failure of this scheme of the brewers. Now, my good friends, to come right down to practical work, how many times have *you* fanned into flame a quarrel between your-

self and your neighbors instead of quenching the flame and seeing it die out along the line I have indicated?

In making this little personal matter public, perhaps I shall expose myself to more trials. If so, may God give me grace to keep pleasant, and put up with whatever little persecution may follow. As a goodly number of our journals go to Bradentown and vicinity it would not be strange if some of those same boys would get hold of it and decide to give me a harder trial than I have had yet; and may the dear Savior give me grace and wisdom to remember that these very boys are the ones for whom he suffered on the cross that they might live. Just one thing more: I was going to say that I am one of the meekest and humblest of his followers, but I do not merit that distinction yet; perhaps I may, however, before I die. May the dear Savior give me grace to say as he said, "Father, forgive them, for they know not what they do."

Poultry Department

DUCKS AND CHICKENS IN FLORIDA—SOMETHING ON THE OTHER SIDE.

Mrs. Root is continually telling me that there is danger of my leading people into error by giving only the rosy side of most things; and she says I have not mentioned some of the difficulties with ducks and chickens in Florida, especially for those who, like ourselves, spend only the winter here. Just now, for instance, in the middle of April, when I am planning to go back to Ohio, I find it difficult to find somebody who "wants the job" of caring for my poultry until I get back here next November. One year I let a neighbor have the grown-up fowls for the eggs, and he thought he did fairly well. I paid him only for the trouble of taking the fowls home and bringing them back. The next summer, however, when there were a lot of "youngsters" also, it was a different problem. The year after, another friend kept my grown-up fowls during the summer. He said he could not tell whether the eggs paid for the feed or not; but as he was a particular friend he made no bill for the trouble or feed. Just now, however, nobody seems to want them. As I have sold off my old hens, there are only about 125 chickens, young and old. A dozen of them are about four months old. In Florida they rarely begin laying before six months of age. Well, under the circumstances I offered to furnish *all the feed* and give the neighbor the cockerels for taking care of them. There will probably be fifty

or sixty roosters that will bring, say, half a dollar each when they are large enough; so he will get from \$25 to \$30 for just seeing that they have feed in their galvanized tubs, and that the windmill keeps the water "dripping" all the time. He also has the eggs laid by 25 ducks for the work of shutting them up nights and letting them out mornings.

From the above you will probably notice that I had better sell my chickens in the spring when I go back north, and buy some more when I get back in the fall. But here is the point: I have a special strain of a cross between Buttercups and White Leghorns that I like better than any thing else. This cross not only seems to give more eggs than either before crossing, but so far there has been a smaller percentage of males than pullets. And right in here comes another difficulty with the Indian Runner ducks, especially in Manatee Co., Fla. Up in the North, growing green ducks for the market is a great industry, and people pay big prices for these green ducks ten weeks old. Not so down in Florida, for here there is a prejudice against ducks, young or old. The women folks all say it is a lot of work to get them ready for the table; and the people at the meatmarket say the same thing. In fact, nobody will give as much for a fat young duck down here as for a chicken. We do not care particularly about selling the *ducks*, *young* or *old*; but the *drakes* in every flock must be disposed of in some

way, or they will "eat their heads off." I sold a few year-old drakes, that I did not need, for only 8 cts. per lb. because nobody would give more. They weighed about 5 lbs. each.

Now I have told you the worst side of the poultry business—first, getting the chickens not old enough to lay kept through the summer, and keeping the old ones through the moulting season; second, in the duck business, getting rid of the surplus drakes.

The duck-books tell us that people can be *educated* so as to appreciate and pay for green ducks; and they also tell us about experts who will pick a duck and get it ready for the table in *three or four minutes*, while Mrs. Root declares it takes a good part of the whole forenoon; and she has consulted other women who feel a good deal as she does about it. And she thinks a nice fat chicken is ahead of a duck after it is ready.

CHUFAS FOR CHICKENS.

In answer to Mr. A. T. Cook's letter, April 1, I wish to say a word about the chufas. My father's family used to object to planting chufas close to the house, for we always thought that meant "no eggs." But one spring my father planted a little over an acre of chufas near the house in some rich cow-pens, and just as the nuts began to mature the chicks took to them, and, to our surprise, we got *more* eggs than we had ever got before, in the fall and winter.

Cody, Fla., April 14. HENRY F. STAFFORD.

Friend S., I am very glad to get the above, for the reason that one of our neighbors in Florida thought his hens stopped laying just because they had access to a plot of ground where he had been growing chufas; and if I am correct there has been a sort of notion, as you say, that chufas are not good for eggs, and we have now two instances showing quite conclusively to the contrary. I am glad; for if true it cuts out the expense of harvesting the crop. If I am correct, the chufas may remain in the ground, especially in localities where there is no freezing, for a considerable length of time without injury. We are giving them a further trial.

HAWKS AND CHICKENS; HOW A TEXAS WOMAN DOES.

Mr. A. I. Root:—Many a time I have been tempted to write to you after reading your Home talks in GLEANINGS. These Home talks always interested me, and after reading about your trouble with hawks I want to tell you my way of scaring them away.

Last fall and winter I hatched with an incubator over 200 chickens. Some of them disappeared during day time. For some time I could not believe that a hawk caught them, as I never saw any close around the house. After I had lost between 25 or 30 my son noticed a hawk catch a chick and fly off with it. The day after, I saw the same performance myself. The hawk must have been pretty high up in the air, for I was in the yard, where no tree or shrubbery was in my way. All of a sudden he came straight down, about 35 or 40 yards from where I stood, grabbed the chicken, and off he went with it, almost

like a streak of lightning. After that we watched for him and shot at him several times, but failed to get him.

Then I fixed up several scarecrows as follows: I took a pole about six feet long; got some of the boys' old clothes, slipped a stick through the sleeves for arms, nailed this on the pole, then slipped the trousers over the pole (just one leg, and let the other hang loose). Then I made a head of rags, and fastened an old hat or cap on it; then fastened a bright tin lid from lard-buckets, with a cord on the end of each arm. The wind will keep these lids in constant motion, which seems to frighten the hawks. I set up these scarecrows against a fence or bush, and sometimes drive a slab in the ground and nail it to that. I have six of these guards around my premises in different directions as far as the little chickens go.

These guards are no beauties, and people laugh at them in passing; but I don't care, for they certainly frighten the hawks away. I have not lost a chicken since I put them up. There is no expense about it, and no more worry.

A man told me a few days ago that, if you put up a pole about 12 or 15 feet high, nail a stick about 5 feet long across the top, and fasten tin lids on the stick, it would answer the same purpose. May be so. I have not tried it.

I keep only the Silverlaced Wyandotte chickens. They are fine layers all the year. I wish I could see your hen-houses and other fixtures. I am the only one of the family who likes to work with chickens, and consequently I am not fixed up for poultry-raising as I should like to be.

MRS. GRANT ANDERSON.

San Benito, Texas, April 23.

The above reminds me that my neighbor Abbott has a similar device, but he uses cheap looking-glasses or pieces of broken mirrors instead of tin. I must confess that I rather dislike to see scarecrows very near the home; but I think I would put up with a good deal as Mrs. A. does, rather than lose chickens at the rate she did; and I believe it is generally true that when a hawk, vicious cat, or other animal gets into the fashion of having a chicken dinner every day it will usually follow it up unless something is done.

HAWKS AND CHICKENS; COTTON STRING INSTEAD OF NETTING.

In your issue of April 1 Mr. A. I. Root tells of his experience with little chickens and those hated marauders, the hawks, and how he covered his runs with netting wire to protect the young poultry.

We have found a very simple mode of protection which works like a charm in keeping away the hawks that live around Wachusett Mountain here in central Massachusetts, and pass it on to you with the hope that others will try it and find it successful. The rule is this:

We string crowline—white bundle twine will do if one has enough—across the open spaces where the hawks have been in the habit of swooping down, fastening the line on buildings, trees, posts, etc., high enough above the ground to be out of the way of pedestrians, cattle, and teams. We have never known a hawk to venture beneath or between these lines. Apparently they are plainly seen by him as he soars about on the wing, and he suspects a trap has been set for him. I hope other poultry-raisers in other localities will try this way of keeping these marauders away, and find a happy success. It is a far less unsightly procedure than hanging heterogeneous collections of cast-away articles before the eyes of passers-by—a way of attempting protection that often fails to save the precious chicks.

MASSACHUSETTS READER.

Health Notes

ROBBING SICK PEOPLE.

In this age of life we have, thank God, a great variety of reformed people. We have repentant and reformed grafters, reformed saloon-keepers, reformed drunkards, and reformed gamblers; but a good friend of GLEANINGS just now sends a clipping from the *Weekly Kansas City Star*, giving at length the confessions of a "quack doctor." This doctor gives the method in detail by which men of his class bleed their victims. The patient is first required to take a bath before the examination; and while one quack examines (or pretends to examine) the nude patient, another quack examines his pocketbook, and looks over all the papers he can find in his pockets to learn, as far as possible, how much the victim will stand bleeding—that is, financial bleeding. The plan is to get (to adopt a railway phrase) "all the traffic will bear," no matter whether there is real or imaginary trouble. To tell the real truth, the quack doctor would not know and really does not care. The patient is always assured that it was a lucky thing that he came to a competent physician—that unless something was done, and that at once, he had only a few months or weeks to live. Of course, this quack institution has a variety of instruments, electrical, chemical, etc., so as to make a big show; and, to be brief about it, instead of studying up ways and means to *help* the patient, they go through a great variety of performances to squeeze out the last copper the patient has.

Now, I have been through this very thing during the past fifty years; and, to be frank, my opinion now is, on looking back, that about all I needed (most of the time) was to get out in the air and sunshine and to get into a good perspiration by doing some useful work before I sat down to my desk, to attend to correspondence, etc. This "confession," and I feel sure it is a true one, almost makes the chills run down one's back to think that any human being should be so depraved as to resort to any such despicable means to get a poor man's money—money that he has worked hard for—without giving him any sort of equivalent. The highwayman knocks a man down and rifles his pockets; but he generally selects somebody who is measurably able to take care of himself; but these thieves hunt up people in the last stages of consumption, or some other incurable disease, assuring them that, in a few months or weeks, by *their* special treatment and wonderful(?)

discoveries they will make him as "sound as a colt." A part of the paraphernalia consists of putting the patient on a stool with glass legs, and giving him electricity; examining his blood under a microscope; and then telling him his case is hopeless, and that, if he had only come three months sooner, they might have helped him. But they finally make a further examination, and tell him that, if they get *right to work*, there *may* be a chance to save his life. If I am correct, however, our good Uncle Samuel is getting after these chaps, and I hope he will make it hot for them, and do it speedily.

I am rejoiced to see that the World's National W. C. T. U. has sent out a four-page leaflet in regard to medical frauds. I copy below the first two of the 24 mentioned and described:

What is Sanatogen?

According to the manufacturers of it, 95 per cent of it is casein, the curd of milk, and five per cent sodium glycerophosphates. The *Journal of the Am. Medical Association*, Feb. 19, 1910, says that one dollar's worth of Sanatogen is equal in food energy to six cents' worth of milk or one cent's worth of flour. There is nothing harmful in Sanatogen, but there is great waste in buying milk-curd at such a price.

What is the Oxypathor or Oxygenator?

This little device, for which \$35 is asked, is said to pump oxygen in vast quantities through the pores of the skin. All physiologies teach that the power of the skin to take in oxygen is extremely limited. Oxygen enters the lungs through the nose and throat. This is amply proved by the quick death which results when the intake of oxygen is shut off by pressure on the windpipe. The Oxygenator, the name of which was later changed to Oxypathor, was examined by Vermont State Board of Health, which declared that it was merely a piece of pipe, resembling gas-pipe, nickel-plated, with the hollow interior filled with a rough mixture of iron filings, clayey material, and coke-dust. This Board of Health forbade its sale as a fraud. The Commonwealth of Australia forbids its importation as a fraud. As claims are made for this costly and useless device to cure even so dangerous a disease as diphtheria, the public should be warned everywhere against it. The "cures" attributed to it must be of the "mind-cure" variety.

What do you think of charging a dollar for a little "cottage cheese" with a string of testimonials from great(?) doctors? In regard to Oxypathor or Oxygenator, our older readers are doubtless aware GLEANINGS has been fighting this fraud for fully twenty years. If Vermont can forbid the fraud, why can not our whole United States protect her sick and suffering people, who have no means of detecting humbug and trickery from real sense and science. God bless the W. C. T. U. "Long may they wave!"

High-pressure Gardening

THE REJUVENATION OF ORCHARDS.

Our Ohio Experiment Station has just sent out a most valuable bulletin, No. 240, on the above subject. I have not space to make as many extracts as I should like; but I am going to give you a single paragraph from the last page of the book, as follows:

Previous to 1909, Washington Co. was buying her apples for home use. In the year 1909 a number of demonstration experiments were started in the southern part of the county by the Ohio Experiment Station, as well as in a few orchards leased by private parties from a distance. The income of the county, from the sale of apples in 1909, from unsprayed orchards, was less than \$5000. In 1910 the income increased to \$65,000; in 1911 the income from the apple crop advanced to \$200,000. The work has but fairly begun. It is the marvelous spectacle of the reawakening of a practically lost industry in a section where that industry was, many years ago, one of considerable importance.

The above very fairly illustrates what is going on of late in the way of making old neglected orchards good for something. Just think of it! A county that has been *buying* apples, after a little care of its old orchards has actually *sold* \$5000 worth. In just one year from that time they made a tremendous jump up to \$65,000; and in just one year *more* they made another jump that almost takes one's breath away—\$200,000.

SWEET CLOVER, AND INOCULATING CLOVERS IN GENERAL BY NITROGEN BACTERIA, ETC.

At present writing, May 1, almost if not quite all the agricultural papers of our land are recognizing and giving place to articles on sweet clover. From the *Prairie Farmer* of May 1 I clip the following:

GLUE METHOD "FOOL PROOF."

H. L. Kendall Co., Ill., writes:

"I should like a little information in regard to inoculating clover seed by the glue method. I expect to sow a few acres this spring just to try it, any way. The wild plant grows very rank along the road on the south side of this field, also some on the east side. Might not the field receive inoculation from this? I should like to know how much dirt I should use per pound to get the desired result."

If the surface water runs over your field from where the sweet clover grows, you would probably in time have the sweet-clover bacteria thriving throughout your field; but when it is so inexpensive, and so little trouble to be sure about having artificial inoculation it is foolish to take any risk in getting a natural inoculation.

The glue method is not only cheap and easy, but it is nearly "fool proof"—that is, it is not necessary to be very particular about all the details to have it successful in its results. A pound of glue may be dissolved in a gallon of water or in two or three gallons of water, without any appreciable difference in the results; and a quart of dry dirt or a gallon of dry dirt may be sprinkled on the seed after they have been moistened with the glue water. As a rule, about a quart of dirt may stick to the seed, and the rest of the dirt may be screened out or not, just as you prefer, as the amount of dirt is not ma-

terial, if there is enough. In preparing the dirt, however, a little care should be used to secure it from a place where the bacteria are active, as shown by the nodules formed; and if the host plant, in this case sweet clover, has grown in the same place for several years the inoculation will be better. This dirt should not be dried in the sun, as direct sunlight is fatal to bacteria of nearly every kind. The dirt should be finely pulverized and sifted through a fine sieve, but this is not much trouble, as so small an amount is used.

The natural inoculation carried by water from high land is likely to be spotted and unevenly distributed, while the inoculation from the dirt-and-glue method is carried by the dirt to each and every seed, and the bacteria are ready for work as soon as they can sufficiently develop.

In the case of small seed, like clovers, a solution of one pound of glue in two gallons of water is satisfactory, and then the solution is so dilute not many lumps of seed are formed by sticking together. If there should be, it is easy to rub and screen them out.

FRANK I. MANN.

Please notice from the above that the expensive methods advocated of late by our government and all our agricultural papers, recommending transporting soil from where sweet clover has been growing to their fields, promises to be done away with. Instead of a ton of earth, you do not need more than a quart or such a matter. The above is certainly a short cut, and our thanks are due to the *Prairie Farmer* for having given it to the world.

"AND A LITTLE CHILD SHALL LEAD THEM."

Some time ago I said our boys and girls would soon be outstripping their fathers in growing potatoes as well as corn. See the following from *Rural New-Yorker*:

CHILDREN'S POTATO CROPS.

On page 344 is an article entitled "The World's Potato Record," and I thought if that was considered a record perhaps some of your readers might be interested in a record that some of our boys and girls made last year, so I enclose a report that was published in a local paper at the time. This contest was started by myself; but a committee, composed of a member of the Y. M. C. A., the Chamber of Commerce, the County Superintendent of Schools, the Grange, and the Agricultural College were asked to and did help with the contest. Two hundred and twenty-seven boys and girls entered; and in spite of bad weather, blight, and other discouragements, 85 came clear through and made their showing at the fair held for that purpose. The plot of ground was one square rod, and no potatoes were counted that were dug outside of the 16½-foot limit. The judging was on a basis of 60 points for quantity, 25 for quality, and 15 for essay. The best yield was 587 pounds; second, 535 pounds; and then there were several in the four-hundred-pound class. This year the contest is State-wide, and includes, besides potatoes, wheat, oats, corn, and peas, besides stock-judging and school-garden contests.

Washington.

C. E. FLINT.

The first prize was won by Arthur K. Collins. On his rod of ground Arthur raised 587 pounds, or at the rate of 1565 bushels per acre. His prize was a scholarship at the Agricultural College and a \$15 account in a bank. Charles Banner won second prize, \$50 worth of land and \$10 in cash. He raised 535 pounds, or at the rate of 1440 bushels per acre. One of the girls, Jeannette Gilmore, raised 342 pounds, or 920 bushels per acre.—ED. R. N. Y.

Temperance

THE NEXT ADVANCE—A CRITICISM ON THE PROHIBITION PARTY AND THE ANTI-SALOON LEAGUE.

Mr. Root.—I notice the reiteration in GLEANINGS of Chafin's unkind fling at the Anti-saloon League, and I for one raise a protest. Since 1888 I have steadily supported the national Prohibition nominee for no other purpose than to crystallize into a working force the prohibition sentiment. It matters not how well or ill the standard-bearer conducts himself under the fire of enemies, whether open foes or concealed enemies of the cause, the duty of the voter is to vote his sentiment, nor be affrighted by the blowing of a leaf.

GLEANINGS has previously asked the question, "Can't we get together?" and in this latest utterance reveals the reason why we can't; for it is the same reason from Maine to California, and from partisan and non-partisan alike. The blowing of a leaf causes affright.

We will get together. No vaporings on either side shall deter. The time for close-range action is at hand. GLEANINGS, not being an organ for either side, is just the paper to propose and be heard in this matter.

I believe the Prohibition party has blazed the way to the annihilation of the liquor-traffic by teaching men to vote for *what they want* in legislation. The Anti-saloon League is but a child of the parent. The public measures a party by the number of its votes. The Prohibition party is infinitely bigger than its vote. The Anti-saloon League is larger than the number of its contributors; but a discussion of these is not intended here. What is wanted is future plans. Let us amalgamate. It will hurt our pet hopes; but, no matter. The end sought is the only good. Here is a plan:

A national convention of all prohibition forces to be held in Indianapolis next fall. Let the political powers disband with flying colors, and a new organization take the places of the Prohibition party and the Anti-saloon League. Let our leaders have time to bring into being an organized unity that will be invincible, not seeking the spoils of office, but raising the penalties and making repulsive the liquor-traffic and its hangers-on; and let no one stand in the way.

We will get together, and end the tragedy, though it cost a thousand lives instead of trampled feelings. Bladen, Ohio, Jan. 6. CHAS. H. CARGO.

Amen to the above, Bro. C.; and if it is true that I have been disturbed by the "blowing of a leaf," as you express it, I will try to scrape up a little more faith, and perhaps a little more patience and humility.

By the way, I have just had a letter from Superintendent Baker in which he declares that, since the brewers have failed to keep their promise in such a shameful manner in regard to license in Ohio, there is no course now except for *all* the temperance people to join together and demand Statewide prohibition. As I understand it, this would mean the Prohibition party and the Anti-saloon League can work together (at least in Ohio) as a unit. May God hasten the time.

DON'T KEEP BEES, BUT KEEPS "BUSY."

On page 176, Feb. 15, I suggested that "L. R. H." must be a beekeeper. It seems he got hold of that number of GLEANINGS, and replies as follows:

To A. I. R.:—No, I do not keep bees. I keep busy. L. R. H.

Let me explain further: L. R. H. stands for L. R. Horton, of Spokane, Wash., the publisher of a bright little pamphlet entitled "101 Shots at the Liquor-traffic." The price of this attractive little book of about a dozen pages is a nickel, or by the quantity \$2.00 per 100, and they are being scattered by the thousand all over the world. The little book is *red* outside, and as a general rule it is *read* inside by everybody who knows how to read. A man in Illinois was so much taken up with it that he ordered \$8000 worth, and he is going to send them to Sunday-schools and to their superintendents throughout the United States and Canada.

HOW ARKANSAS IS "KILLING TWO BIG BIRDS WITH ONE STONE."

We clip the following from the *Cleveland Plain Dealer*:

ARKANSAS BARS SALOONS.

LITTLE ROCK, Feb. 10.—Final action was taken by the legislature to-day on a bill that practically prohibits the sale of liquor in Arkansas. It provides that a person intending to open a saloon must obtain signatures of a majority of white adults in the city or town in which he hopes to do business.

The measure is looked upon as practically a State-wide prohibition act, because names of white women as well as men must be obtained, and the negro population is not taken into consideration.

May God be praised for what Arkansas has done, and may other States speedily "sit up and take notice," letting *good women* have a voice in the matter, and also killing the drink evil with one bold "fling."

UNITING THE TEMPERANCE FORCES.

We clip the following from the *American Advance* of March 29, not so much because of the very kind words for the Home Department, but because the editor of a prohibition paper speaks thus kindly of a periodical that has been foremost in endorsing the Anti-saloon League from its start up to the present time.

PROHIBITION BEEKEEPERS.

It is said that there are more Prohibitionists among the beekeepers of America than among any other group of business men. At any rate, readers, editors, and publishers alike have reason to be proud of the brilliant representative of that trade, GLEANINGS IN BEE CULTURE, published at Medina, Ohio. Many strong blows against the liquor traffic have been struck by the veteran editor of this magazine, A. I. Root, who contributes to the March 15th issue, just out, a most compelling and suggestive discussion of civic righteousness under the head of "Our Homes." We congratulate GLEANINGS as well as its readers upon the continuously fine spirit of its editorial pages.

Gleanings in Bee Culture

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Editorial

HONEY-CROP CONDITIONS.

THE reports that have been coming from the white-clover districts of the country have been very flattering indeed. Heavy rains early in the spring, warm weather, sunshine, and more rain, have made it look as if there might be a big crop of clover honey. Even if a drouth should come from now on, we don't see how it could possibly prevent securing a fair yield of clover.

Further reports from California, as indicated in our California department, show that the season will probably be an almost entire failure in that State.

The alfalfa regions will probably yield their usual quota of honey. The southern part of the country will likewise have a fair yield.

OUR COVER PICTURE.

OUR cover picture for this issue shows a part of the apiary of R. N. Gidley, at Lakeside, Canterbury, N. Z., as mentioned in the article by E. G. Ward, on another page. In many ways American beekeepers may learn a great deal from their neighbors in New Zealand. The latter are facing many of the problems that we are facing in this country, and carrying on to a great extent the same kind of work. They are progressive and up to date. The ten-frame hive of Langstroth dimensions is pretty well standardized in New Zealand—a fact which we wish might also be said of this country.

Any American beekeeper might well be proud of this apiary, bearing as it does the stamp of up-to-date businesslike methods. Our next issue will contain further particulars.

There is a law on the statute-books of New Zealand making it possible to fine a beekeeper who persists in neglecting to attend to diseased bees. From the *Auckland Weekly News* of November 28, sent us by one of our subscribers, Mr. Robert Black, we learn that Mr. G. V. Westbrooke, the inspector, reported that one beekeeper, having failed to destroy or treat diseased bees after receiving notice to do so, was fined by the magistrate three pounds—that is, about \$15.00.

THE TIME TO SPRAY TO AVOID KILLING BEES.

SELDOM do we find a larger amount of valuable information on this subject, in a small amount of space, than is given in the *American Bee Journal* for May, page 151, by Mr. Frank Rauchfuss, of Denver. Among other things he presents is the statement made by Prof. Gillette, the entomologist of Colorado. He says:

When the codling moth begins to appear about the time of full bloom, they do not begin to lay eggs until the majority of the apples in the orchard are one-half an inch in diameter; when they are $\frac{3}{4}$ of an inch they are laid freely. As soon as the little apples lose their fuzzy coverings the moths lay their eggs very largely upon the cheek of the apple, but *never in the blossom*. Later they find their hiding-place in the blossom end of the apple. After the blossoms have fallen and the apples have attained a little size, *is the time to spray and not before*.

A good many up-to-date fruit-growers have the idea that spraying for the codling moth should begin just as the petals begin to fall. But this will catch some bees, as different varieties of apples mature at different times, and there will be early and late blossoms on even the same tree. If the fruit-grower will follow Prof. Gillette's recommendation he will avoid all possible danger of interfering with the interests of the beekeeper, and at the same time look to his own interests. Spraying at the wrong time wastes material and time.

BIG FIELD DAY AND CONVENTION AT AMHERST APICULTURAL SCHOOL IN MASSACHUSETTS.

ON page 326 of last issue we spoke of the big field day and convention that is to be held at the Massachusetts Apicultural School, Amherst, on June 11 and 12. We had not intended to be present and participate in this field-day work; but pressure from Dr. Burton N. Gates, in charge of the school, finally decided us to go; in fact, we felt that we could not afford to miss it, considering the efforts that Dr. Gates has put forth to make this meet a success. In a letter just received from him to-day, among other things he writes:

Mr. E. R. Root:—Besides yourself, Mr. Morley Pettit has promised to come. It is possible that Dr. Phillips may drop in, although he is not definitely provided for. He was here last year. There will be

eight or ten other speakers from throughout New England.

One session will be devoted to the discussion of the brood diseases of bees, their treatment and prevention, during which a prominent feature will be the discussion of the transportation of bees in combless packages, of which I have previously written your company. A number have already indicated their intention to send specimen shipments. This, of course, is in the nature of an advertisement, and should arouse the interest of beekeepers in the new and safe method of bee transportation. We shall also demonstrate the treatment of diseases during this session.

Another session will be devoted to general discussions. Your work will of course be concerning out-yards and the extraction of honey and most up-to-date methods using our equipment which is installed.

I shall announce also some of the features of the apiary equipment of this institution which includes a nectar-yielding garden which is being planted and maintained so that the beekeepers may see growing the more important nectariferous plants. There will also be for comparison several types of cement hive-stands.

Another feature will be the display of queens of the different races and types advertised in the country. The equipment of implements and beekeeping materials will be on exhibition and is known as the Massachusetts Agricultural College Apicultural Museum, which Phillips has designated as the most complete array yet gathered. This also includes some rare books on the subject.

Other topics which will be discussed by competent authorities will include problems of increase; those of interest to the beginner as well as some new topics involving the production of colonies during the winter, by Mr. Whitten, of Hartford; the maintenance of bees in buildings for school and other purposes.

Mr. Pettit will doubtless speak concerning Ontario beekeeping conditions, giving an illustrated lecture in the evening, I expect.

Amherst, Mass., May 19.

B. N. GATES.

The equipment mentioned by Dr. Gates, which we shall use for illustrating the modern methods for taking extracted honey, will consist of a power honey-extractor, capping-melter, steam uncapping-knife, honey-pump, and all complete.

We might add further that there is a possibility and even a probability that J. E. Crane, of Middlebury, Vt., will be present also. Mr. Crane is a champion of the new method of shipping comb honey in paper cases. He will doubtless be present to illustrate not only the case made of corrugated cellular paper, but how the honey is packed therein.

THE MOTH-MILLER SOMETIMES A BLESSING IN DISGUISE.

INSPECTOR MORRIS, who called at Medina to inspect our bees, called our attention to the fact that the moth-miller is not altogether an unmitigated nuisance. This pest seldom bothers the professional or up-to-date beekeeper. It is only the slipshod, careless, don't-read-the-bee-papers class that it annoys. It is this class who are the early victims of the ravages of foul brood. Their bees become weaker and weaker, and finally die in the winter, leaving combs more or

less filled with honey, and smeared over with the dead matter from foul brood, and, unfortunately, these "old gums" containing infected honey are a constant source of infection to all the bees in their vicinity. The healthy bees within range rob them out. In the mean time the moth-miller, if present, gets in its work, and destroys the combs so that no future swarm will find these old hives a suitable abiding-place. It is right here that the moth-miller proves to be a blessing in disguise. These old combs all covered with foul-brood scales would, unless destroyed by some agency, attract swarms; for experience has shown that they are frequently occupied by stray swarms. The bees get nicely started in housekeeping, begin to fill the combs with honey and brood when, lo! bee disease begins to make its appearance. The colony dwindles, of course, dies in the winter, and is again the source of infection to the neighboring bees. They rob it out once more; but if there are moth-millers in the locality they soon destroy these old combs and leave in their place a mass of webs and filth that is so repellent that no swarm of bees will make a home there. Said Mr. Morris, "The moth-miller, after all, may be a friend to the progressive beekeeper in that it destroys one great source of infection—old diseased combs in his neighborhood that might otherwise remain in bee-trees and old boxes for years and years, and for years and years spread bee disease."

The coyote is a nuisance to the western ranchman because it destroys his young stock; but that same coyote is a blessing in disguise, in that it keeps down the jack rabbit that destroys the same ranchman's crops. There is a beautiful balance in nature when left undisturbed. It may be that the all-wise Creator has created the moth-miller to protect the up-to-date beekeeper.

RECENT FOUL-BROOD LEGISLATION IN THE UNITED STATES.

WITHIN the last three or four months eight different States have passed foul-brood laws. Some of them have had old laws that were defective, while others have secured for the first time legal means for the suppression of bee diseases. First among the list was Pennsylvania. It already had a law but no appropriation. This has now been secured, and Pennsylvania will now take her place among the States that have an effective foul-brood law. The administration of the law in Pennsylvania will be in the hands of Dr. H. A. Surface, Vice-president of the National Beekeepers' Association, President of Pennsylvania State

Beekeepers' Association, and State Economic Zoologist. Dr. Surface is eminently the man for this work.

Michigan is another State that has already secured foul-brood legislation. Particulars concerning this were given in our last issue. Minnesota has now secured one of the best laws that there is on the statute-book of any State. This measure was passed recently, carrying with it a special appropriation of \$3000 a year. At a called meeting of the Minnesota Beekeepers' Association, May 5, a motion was duly made and unanimously carried, recommending the Board of Regents of Minnesota to appoint Dr. L. D. Leonard to the head of the Apicultural Department at the Agricultural College. Dr. Leonard is one of the influential beekeepers of Minnesota. For many years he was president of the Minnesota State Beekeepers' Association, and has been for four years its secretary. He has been keeping bees for twenty years, and in every way is well qualified to fill the post for which he has been recommended.

Iowa has for a year or so back had a foul-brood law, but practically no appropriation back of it to carry it into effect. This defect has been remedied, and now the beekeepers of that State have \$1500. The administration of this law has been placed in the hands of former State Foul-brood Inspector Frank C. Pellet. Another bill has been passed forbidding the shipment of diseased bees into Iowa. Mr. F. C. Pellet is not only a beekeeper, but is on one of the lecture-bureau courses for a variety of subjects. Of course this means that he will be able to give public addresses on bees.

For years California has had a foul-brood law; but, like all county laws, this, to a great extent, has been ineffective. It soon became evident that a State-wide law was needed. For a number of years back the beekeepers of the Golden State have tried to secure such a law, but without success. One has now been enacted that is probably equal to any law in any State. It appoints a commission consisting of the State Commissioner of Horticulture, with the president and secretary of the State Beekeepers' Association. It is the duty of these gentlemen to appoint a State apiarian, who, in connection with the commissioners already mentioned, are to make examination of inspectors in order that no one be appointed who is not well qualified for this important work. It will be remembered that the State Commissioner of Horticulture is none other than our old friend Prof. A. J. Cook, formerly of the Michigan Agricultural College, and later Entomologist at Pomona College, Claremont, Cal. He has ever sought to ad-

vance the cause of beekeeping. He was largely instrumental, if we are correct, in securing Michigan's first foul-brood law. He conducted a number of interesting experiments at the Michigan Agricultural College, showing the invaluable service performed by the bees in pollinating fruit-blossoms. He was among the first to call attention to the value of honey as a food, showing that it is an invert sugar and easily assimilated. He continued his interest in bees when he went to California. He is a big broad man, and we should imagine that conditions respecting bee diseases will be materially improved.

For several years back the beekeeping industry in Nevada has been growing at a rapid rate; but, unfortunately, there has been no effective foul-brood law to prevent the spread of disease. Bees have been brought into Nevada and California by the carload. In many cases it has been found that these carload shipments have contained bee diseases; but the beekeepers of those States were powerless. Nevada has finally come into line, but, unfortunately, with nothing better than a county law. This, however, is much better than nothing; but it is to be hoped that the beekeepers of that State will see to it that a State-wide measure is enacted, as it would be difficult to prevent the importation of diseased bees from diseased apiaries unless some police authority be vested in some State official.

Mr. J. Benjamin Hall, with the co-operation of the beekeepers of Idaho, has just succeeded in getting a foul-brood law enacted, known as House Bill No. 295. A good appropriation was also secured so that good work may be expected. See Mr. Wesley Foster's comment in his department on another page.

Last, but not least, Texas has finally passed the amended foul-brood law, and the same will become effective July 1. Its administration, as before, will be in the hands of the State Entomologist, Prof. Wilmon Newell, at College Station. Prof. Newell is one of the best entomologists in the United States; and, what is more, an enthusiastic beekeeper himself. The biggest State in the Union, and, possibly and probably, the biggest bee State, ought to have a good man for the administration of this law, and it surely has got him. The special features of the new law will be given later.

All together, foul-brood legislation is advancing at a rapid rate in the United States, and we now have 33 States having foul-brood laws. In most of the States the spread of diseases has been checked. In many others there is a decided decrease in brood diseases.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

A BEGINNER might understand from a footnote, p. 140, that a certain size of section may be found that will average a pound. I don't think the editor means that, for there is no such size. If you find a super filled with sections of such size that they average just a pound, you may find another lot filled at the same time by another colony with different average. With the same colony you may find the average different in different years, or in different times of the same year. [You are correct regarding different colonies.—Ed.]

I'M glad A. I. Root is taking up the clothing question. But why not tell us where those Florida shoes can be had, and at what price? But I'm more interested in women's fashions. If I understand correctly, freak fashions are gotten up in Paris—fashions that self-respecting French women will not wear—and foisted upon American women as the proper caper. Thank the good Lord, a rebellion has begun. A. I., have you noticed lately the fashions in *The Ladies' Home Journal*? It will do your heart good to look them over—genuine American fashions, and to me they look beautiful beside the outlandish things that bring high prices merely because *imported*.

O. L. HERSHISER has made out a strong case against extracting unripe honey, p. 177. He's right. But he may not feel so much like condemning Mr. Hopkins' views if he takes into consideration the difference in conditions in this country and in New Zealand. Here, nectar is counted good if it contains no more than 75 per cent water. *In New Zealand, nectar, when first gathered, is generally thick enough to pass for honey under the United States pure-food laws.* Mr. Hopkins says, *American Bee Journal*, 92, "When first gathered, nectar rarely contains more than 25 per cent of moisture, and usually much less." If the two men were to change places, they might change views. Matter of "locality" again, you see.

B. O. MARTIN, p. 180, I think you are right in saying that bees which become queenless accumulate pollen before becoming queenless, *if* it is a case of a virgin lost on her bridal trip. I think Mr. Holtermann is right in saying that when bees lose a laying queen they accumulate pollen *after* the loss of the queen. In both cases there is precisely the same thing, as Mr. Holtermann says: "The bees gathered pollen, and did not have larvæ to feed the pollen to, and it

had, therefore, accumulated in the combs." For, so far as brood was concerned, the colony with a virgin was the same as a queenless colony. You ask, "Did you ever examine a colony that had just lost a queen? and did you not find the combs full of honey and pollen?" and then you limit the question to the exceptional case of a virgin lost on her wedding-trip. Ask that same question without any limitation and the answer will be, "No, not if the queen had been doing good work at laying right along."

Try the thing in this way: Go to a colony with a good laying queen and no accumulation of pollen, and kill the queen. Look two or three days later, and see if there's any accumulation of pollen. Not a bit; for there has been as much brood to feed as if the queen had continued laying. But go two or three weeks later, and see if you don't find the extra pollen.

YOU SEEM to think, Mr. Editor, that half a cubic meter of air is rather small for a 13-pound colony to use in an hour, p. 204. Let's see. At that rate, in a room 10 by 10 and 8 feet high two such colonies would smother inside of 24 hours. Seems to me that's using some air. You're just right, that in a nearly dormant condition they'd use much less. My guess would be not a twentieth as much. [We did not mean to imply that the limit of a cubic meter of air per colony in an ordinary bee-cellar would kill the bees, for, as a matter of fact, a dozen men all smoking can exist in a small room, overheated, with practically no ventilation, for several hours. But it is hard on the men, just the same. If we were to put a colony in a glass bottle, assuming that it could be done, having an internal capacity of a cubic meter, and seal it, we believe such colony would be dead in a very short time, even if the temperature surrounding the bottle were kept down to 45 degrees. The fact is, in an ordinary cellar there would be constant ingress and egress of air. There is usually space around the windows and doors that let in considerable air, especially if the temperature outside is 25 or 30 degrees lower. The oxygen in ordinary air would have to be almost completely exhausted before suffocation would ensue. Perhaps it would pay us next winter to make a metal box a meter long, wide, and deep, and see how long a colony would last in it. We would expect them to boil out of the entrance of the hive and die inside of half an hour.—Ed.]

Beekkeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

COMPENSATION FOR COLONIES DESTROYED.

Mr. Chadwick makes a good point when he says that colonies of diseased bees should not be destroyed unless the owner is compensated, and I believe that there are cases where this compensation should be made. However, there are many extensive beekeepers whose bees continually have foul brood who think it is a good thing to have a little around to kill off the other fellows' bees. These men ship bees to some extent too. If I have a hundred colonies of bees, and half are affected with foul brood without my knowledge, how long will it be before I have no more bees? About a year, I should say, unless there happen to be good honey-flows. Suppose I move these bees to another State, and they are inspected and destroyed. Should I be paid for what I shall soon lose any way? Or should I be made to suffer the loss and build up on a firm basis of knowledge of foul brood? The best plan would be some quarantine method by which I could save my bees and learn to cure foul brood at the same time. Beekeeping extension carried to its proper conclusion will make bee inspection practically unnecessary.

* * *

THE NEW IDAHO LAW.

Idaho beekeepers have a new apiary bill before the legislature that has some good features, and some that are not so good. It deals with shipments of infected bees from other States in this way. The inspector is to be notified before unloading and not after. A fine of \$250 to \$500 is provided for failure to notify the inspector of the arrival of an infected shipment within five days. A fine of \$100 to \$200 is provided as punishment for selling or offering for sale diseased bees or exposing diseased material in the apiary.

The examination of bees before unloading is a good point; but a quarantine yard should be provided for in these cases, so that the colonies could be treated and cured without having to be shipped out of the State. The fines provided are too high to be of any use. Five to one hundred dollars would be better. One hundred to two hundred dollars as fine for exposing diseased material in an apiary is impractical, for such fines will never be imposed, and they will not have a tendency to better conditions in cleaning out foul brood in a district. More work and educational effort along the line of foul-brood instruction will bring better results. The aim of foul-brood legislation should be to clean out the disease, or

at least to control it—not to fine some one for neglect. Many of us are neglectful.

* * *

THE COLORADO AGRICULTURAL DEMONSTRATION TRAIN.

The honey-cooking recipes are the most popular part of the bee-culture exhibit on the Colorado Agricultural College demonstration train. Mrs. Frank Rauchfuss prepared the goods, and they are so appetizing and toothsome that every lady passing the exhibit wanted to stop and copy the recipes printed on the jars containing the samples. We soon realized that this would clog the traffic through the car, so 3000 copies were run off on the multigraph and given out.

HONEY RECIPES BY MRS. A. RAUCHFUSS. HONEY BROWN BREAD.

One cup corn meal, 1 cup rye meal, 1 cup sour milk, ½ cup honey, 1 teaspoonful salt, 1 teaspoonful soda. Steam 4 hours, then dry in oven 15 minutes.

AURORA HONEY COOKIES.

One cup honey, 1 pint sour cream, 1 even teaspoonful soda dissolved in a tablespoonful of boiling water. Mix honey, cream, and soda together thoroughly; add a cup of chopped nuts (any kind desired), 1 teaspoonful of ground ginger, and a heaping tablespoonful of ground cinnamon. Add flour enough to make a dough stiff enough to handle easily on the board; roll out part into buttered tins, and bake in a moderately hot oven until nicely browned.

HONEY GINGER SNAPS.

One cup butter, 1 cup sugar, 1 cup honey, 1 cup water, 1 heaping tablespoonful of ground cinnamon, 1 scant teaspoonful of baking soda. Sift the soda into 1½ pints of flour; cream the cup of butter with the sugar; add other ingredients, and more flour to make a dough that can be rolled out. Cut into desired shape, and bake in a moderate oven.

SEAFOAM CANDY.

Two-thirds cup of honey, 3 cups granulated sugar, ½ cup boiling water, whites of two eggs, 1 teaspoonful vanilla, 1 cup of nut meats. Boil the honey, sugar, and water till, if tested in cold water, it is brittle. Pour this in a thin stream over the whites of two well-beaten eggs, beating the whole all the time till like a thick cream, then stir in briskly the nut meats and vanilla, and pour out into a buttered dish. After it has hardened, cut into squares.

With one week still unfinished, over forty thousand people have seen the exhibits on the train. Ten lectures on beekeeping have been given, and much interest has been manifested, as is shown by the questions asked. The questions most frequently heard are about the control of foul brood and swarming. Amateurs surely have trouble in the prevention of excessive swarming. Many report that yellowjackets kill their colonies; but so far it seems that this occurs only where excessive swarming has been the rule throughout the summer, and none but weak colonies short of honey and with the hive but partly full of comb to go into winter quarters. It is no wonder that colonies are soon cleaned out by the yellowjackets.

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

This year, again a number of "apiary demonstrations" are being held in different counties of Ontario. This style of giving instruction in apiculture seems to be rapidly superseding the old-style meetings; for to the average student one ounce of "show me" is worth a pound of instruction of certain manipulations of the bees.

* * *

I do not agree with friend Townsend at all when he says in regard to American foul brood, "Once in a locality always in a locality," as I am sure we have many places here in Ontario that were once badly diseased that are now clear. As to European foul brood, while we have not had the actual experience in our own section yet, I suspect he would be more nearly right if he applied that saying to this disease.

* * *

My intentions are to leave home on May 14 and move 250 colonies of bees, with about 500 supers and other supplies, three miles to the railway, and then 200 miles by train. In addition to this I have to make by mail all arrangements for moving, as I am now 200 miles from the bees. Now, don't all speak at once and say that you envy me the job, else I shall suspect some are hardly truthful in what they are saying.

* * *

In giving the Demaree plan of keeping down swarming by hoisting all brood-combs but one above the queen-excluder, please sound a note of warning to beginners that, unless they are very careful, they will have a lot of dark honey in those brood-combs, and the honey will be all off grade when they are ready to extract. The seasons are rare in this "locality" when *all* the dark honey will be out of *all* the brood-combs when the clover season starts; and for that reason the plan of hoisting all brood-combs above is impractical here, much as we might desire to practice the plan, for it assuredly will knock out swarming if properly done, and give a maximum in the way of a honey yield.

* * *

Also make the "warning" very pronounced when advocating the Alexander plan of making increase, and say that it is advisable to use this plan only in localities having their main flow late in the season; for I agree with Dr. Miller most emphatically in saying that, for clover locations, the plan is no good unless one wishes to cut the crop in half. This year our bees are very strong, many having to be supered in willow bloom,

even if the bees are in ten-frame Jumbo hives; and yet under such conditions I would not think of breaking up the colonies unless I were willing to sacrifice part of the crop of clover honey.

* * *

Reports continue to come in, that the spraying law is being violated this year a great deal, and many beekeepers are fearful that much damage will be done to their bees. As pointed out in a recent issue, the fine is very low, and many operators openly say they can afford to pay the fine rather than stop spraying operations when each day's work means about \$15.00. Then, again, many beekeepers hesitate to apply the law to neighbors, even if the fine is low, as hard feelings always follow a lawsuit. Something will have to be done in the near future, especially in the commercial fruit-growing districts, as the situation is becoming very acute indeed.

* * *

When sending that protest to Miss Tarbell regarding that glucose-honey-comb canard (page 281, May 1), please send another protest to the chaps who are advocating making queen-cage candy with glucose. Yes, I admit that I recently expressed the hope that honey could be left out altogether in making Good candy for mailing queens, for the queen-breeders' sake; yet I now see that the remedy would be worse than the disease. First thing you know, you will see a big advertisement in the *Ladies' Home Journal* or some other big influential magazine, telling us that even *beekeepers* recognize that glucose is better than honey, and are using it to feed their queens. In a case of this kind, it is better to avoid the very appearance of evil and be on the safe side.

* * *

The latter half of April was very cold and windy, with heavy freezing by night and thawing by day. Result, fully half of the alsike is killed outright here in York Co. We should be thankful that there was a heavy acreage, as we still have lots left for a crop of honey if clover should be in nectar-yielding humor. Flat fields suffered most, because there has been an unusual amount of moisture in the ground. Clover-killing was only local. Most localities report that clover is in good condition. The season for fruit bloom is one of the earliest on record, for winter jumped abruptly into the arms of summer about April 25. Good reports of the bees are coming from all over Ontario, so, needless to say, Ontario beekeepers are hoping for the best this year.

Conversations with Doolittle

At Borodino, New York.

IS NATURAL SWARMING PROFITABLE OR NOT?

There is not a shadow of doubt in the mind of the apiarist who makes a specialty of beekeeping but that he would be much better off if bees never desired to swarm; but with the beginner or the farmer beekeeper there is an element in natural swarming that appeals to him, and to all there is a certain awe and fascination on seeing a natural swarm of bees on the wing. I have heard expressions of wonder and admiration come from the lips of all sorts of men and women when seeing a swarm of bees in the air. One of the great things about a natural swarm of bees, and one which can hardly yet be denied, is this: The bees of a natural swarm receive an impetus to work by finding themselves in their newly pitched tent destitute of brood and provisions, not brought about in any other way. Then if the sections are put over such a swarm as soon as the bees are nicely established in the hive (to an extent where the queen has begun to deposit eggs in the newly built comb or drawn foundation), section honey can be obtained which is rarely if ever equaled by any of the processes of artificial increase yet invented by any apiarist or by any plan of non-swarming.

That there are some weighty objections to natural swarming if it could be successfully repressed is not to be denied; but these may be spoken of under two heads—namely, the time and labor required for watching and hiving swarms, and the danger of loss from swarms absconding. It may be held by some that an undesirable increase would be the greater objection; but with the practical man this should be easily obviated, even to a point of value. If all swarms are to be hived in empty hives, as was the case with those keeping bees fifty or one hundred years ago, then I will concede the point; but with the one who has twentieth-century light it is only a question of the disposal of the brood in the hive from which the swarms issue, and that is generally very valuable, especially in early swarming. Some seem to think that this brood, when emerged into perfected bees or before, should be returned to the identical colony that produced it; but with the practical apiarist it may usually be used with decidedly greater advantage in other ways.

There are few if any apiaries at the opening of the nectar flow but that have some colonies that are not up to the strength required for the best work in the supers. If these hives of rapidly emerging brood be

distributed among such deficient colonies as fast as they can be obtained from the leaving of prime swarms, shaking out of each all of the bees left behind so that they may go into the new hive with the prime swarm, both the swarm and the deficient colonies will be greatly benefited. Thus in a week or two, if swarming continues, all may be gotten in excellent condition, and results obtained beyond the fondest expectations.

Then, too, there are frequently colonies out of condition on account of being possessed with wornout or old queens. Destroy these queens as fast as hives of brood can be obtained, and place one such hive on each colony now queenless. In a few days it will rejuvenate in strength, and will have an extra-good queen coming from the queen-cells left after the issue of the prime swarm.

The danger of loss from prime swarms absconding can almost certainly be prevented by having the wings of the queen previously clipped, which is most conveniently done in May when the fruit-trees are in bloom. Then, as soon as the swarming bees miss their queen, they may be made to hive themselves by having the new hive on the old stand at the time they begin to return. Some claim that, should a swarm come out having a virgin queen at the time such prime swarm is clustered or in the air, said virgin queen would make absconding possible, she having her wings to fly away with the whole mass. But after forty years' experience in this matter, with scores if not hundreds of such cases, I wish to go on record as saying that, so far as I know, the bees of a *prime* swarm will never be satisfied with a *virgin* queen to lead them away from their old mother or the hive of brood which is left behind. Such uniting results in the balling of the virgin, when the whole mass, except the few in the ball, are practically queenless.

The objection made against swarming on account of the time required for attending to it is not great where the apiary can be located within easy vision of that part of the house where the kitchen work is done, as most prime swarms issue between the hours of nine o'clock and one, when the housekeeper can notify the apiarist if he himself is not at work in the apiary. For the highest success in the production of section honey, strong swarms are desirable; and hiving swarms on the old stand and giving them all the bees which the parent colony contained not only conduces to their strength, but prevents that greatest nuisance, the call of "bees swarming."

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

A beekeeper expressed the foreboding that it would be very difficult for the professional apiarist to protect himself from the ravages of black brood with so many uncared-for colonies to contend with. I take a different view of the situation, for it is my opinion that, after a locality is infected with the diseases, there will be a few of the truly watchful and painstaking with the field practically to themselves.

* * *

The foul-brood law proposed by the State Association was passed with only one or two unimportant changes. It carries an appropriation of \$10,000, which amount is not to be used for general inspection work, but each county must still pay its own inspector, though the appointment and dismissal are almost entirely at the will of the beekeepers. I believe that we now have the best foul-brood law in the United States. Inspectors will hereafter be appointed on merit, and not to pay political debts. Inspectors will not be able to draw 16 to 20 dollars per month during the winter months for office time, but will have to "produce the goods" or get out. If the State Association has accomplished nothing more, this alone is worth all the beekeepers have paid into the treasury. A copy of this law will appear in these columns later.

* * *

MIDDLEMEN CONTROLLING PRICES IN SPITE OF THE LAW OF SUPPLY AND DEMAND.

Dr. Miller, p. 172, speaks of the women of several large cities taking a hand in the egg market and reducing the price to a point where they could be purchased by the poor, also the apple market in Chicago, and thinks the farmer received no less for the produce on the market at the time. The doctor is, no doubt, right so far as the produce involved was concerned; but when it came to restocking the market for the next raid, the dealer would take into consideration this very feature of the situation, and pay prices accordingly. When such means are used to reduce the price on produce in storage, purchased at a low figure, it may work all right; but when it comes to a market controlled wholly by the supply and the demand, the result would be that the farmer would get the worst of the deal. About the only way this situation can be met is to make it easier and cheaper for the farmer to get his produce to the consumer—not to the dealer, but to the consumer's kitchen, and that seems to me to be

the only way it can be done; for if it passes through the hands of one or two middlemen there is too much temptation to combine and fix prices, as I am told has been the case in Los Angeles for a number of years. There the supply has very little to do with the market. The price is agreed upon by the retailers; and if the supply is larger than the trade demands at the price fixed they are dumped to clean up the oversupply, and the grower is paid a price that will enable the dealer to carry on this kind of wasteful business. Many a poor child might enjoy the pleasure of a dish of berries if the price followed the supply instead of the berries being destroyed to maintain an arbitrary price that does not help the producer.

This matter will be given attention by our legislators some day, and I should not be surprised if the national government would be the first to take the matter up after they find it can not be done by tariff laws, which are to a great extent local in nature. Transportation rates reduced to a reasonable figure would be of more benefit to the American people than all of the free-trade or tariff laws that can be devised, if middlemen's profits were reduced in a like manner or eliminated almost altogether. The middlemen have to live, to be sure, but not in this particular line of work; for the time is coming in this land of ours when more men must be producers and fewer live on the work of those who do produce. This applies to the bee business as well as any other agricultural pursuit.

* * *

SUDDEN DROP IN TEMPERATURE KILLING FIELD BEES.

There is one condition that I believe I have never mentioned in these columns, that affects the early spring honey crop perhaps more than any other; and that is, the mortality rate of field bees. California seems to have a cause that is peculiar to this climate. The loss of which I am speaking is due to a sudden change in the air from warm to cold while the bees are in the field, which causes them to become so numb that they are unable to reach the hive. In connection with this I may say that our fine climate is due more to the sunshine than to any other one thing; and without the sunshine we have just as cool and chilly days as are found in New Jersey or any other eastern State during the spring months. Indeed, variation in temperature between

day and night would cause an Easterner some uneasiness for fear of frost, for a change in temperature between day and night is often from thirty to forty degrees. It is not at all uncommon for the temperature to fall at this time of the year from ninety degrees at midday to forty by four o'clock of the following morning. It can readily be seen from this that bees must wait until after sunrise on many days before the air is sufficiently warm to permit them to venture into the field. But the condition just spoken of does not necessarily cause loss of bees. Fog is one feature that causes heavy loss. By this I do not mean the low dense fogs, but the high fog clouds that drift over the sky the greater part of many days, which become denser in the early afternoon. Then, again, the intermittent cloudy days following a storm flurry bring conditions that are equal to any bee-trap that was ever invented. The sun comes out for perhaps twenty or thirty minutes, which gives the bees reason to pour into the field by the thousands, when suddenly a cloud floats over, obscuring the sun, and perhaps it remains there for an indefinite time, causing the bees to chill in the field to such an extent that they are unable to take wing and return to the hive. The sun sometimes shines enough to warm them and enable them to return; but the number of times that they are unable to go back is sufficient to deplete the field force so that it is very noticeable in the numerical strength of the hive. These conditions prevail more or less every spring; and until the weather becomes more settled, there is a constant drain on the forces that are so much needed at this time of the year.

* * *

A DISAPPOINTING SEASON.

This will, perhaps, be my last report on crop conditions in this part of the State for this season, for there will be no crop. This is the most complete failure for many years, and I doubt if it has a parallel in the history of the industry here, though of this I am not sure; but that it is the nearest to a complete failure for ten years I am quite sure. Why? Every thing has been against us from first to last, and conditions are not yet what might be called normal. Of all the reasons for a failure, the lack of rain is the chief cause, with the freeze and an unusually cold spring to contend with, though I consider the freeze to be the least of our troubles. Conditions seemed bad from the beginning; but the bees got a fairly early start at breeding, and this gave a ray of hope for a time. However, the loss of bees from some cause was so great that even

those with a good supply of brood failed to make the progress that we had hoped for. For example, on March 1st, in marking my colonies I came to one with two frames of brood which was marked 2. Two weeks later it was the same; but by the end of the third week they had spread to four frames, and there they have remained since that date. They have spread eggs wider several times, but they have been taken up because of being chilled or by choice of the bees under the influence of continued cold.

Another cause in the orange districts was the early blooming, in spite of the cool weather before the bees were ready to gather the nectar, the heaviest flow being almost to a day one month earlier than last season. My scale colony showed the heaviest day this year on April 25; last season it was on May 23. The quantity of nectar and the short blooming period were also a disappointment. So the season of 1913 must pass into history as a failure so far as a honey crop is concerned in southern California, with the fact remaining that we must not expect a crop from wild flora when our rainfall has been much less than ten inches, with a goodly portion of that falling late in the rainy season.

I will give the weights of my scale colony for a period of two weeks, a part of which time was the warmest during the month of April, and will show the weather variations by the amount gathered each day. Previous to the time I began taking weights we had several days of fair weather. (By fair weather I simply mean days when it was sufficiently warm for the bees to fly very freely during the greater part of the day. We have had many days that were clear; but a cold wind and a low temperature made short days and difficult flying the peculiarities of this season.) Before placing this colony on the scales the bees had stored some honey in the extracting-super, which also contained a quantity of brood in addition to that in the well-filled brood-chamber. (The hive was overflowing with bees.) The queen was put below an excluder, and a super of extracting-combs was placed between the two. The following are the daily gains: April 16, $\frac{3}{4}$ lb.; 17, 2 lbs.; 18, $\frac{1}{2}$; 19, $5\frac{1}{2}$; 20, $2\frac{1}{2}$; 21, $6\frac{3}{4}$; 22, $6\frac{1}{4}$; 23, $8\frac{3}{4}$; 24, $9\frac{1}{2}$; 25, 10; 26, $7\frac{3}{4}$; 27, 8; 28, $6\frac{1}{2}$; 29, $7\frac{1}{2}$; 30, $2\frac{1}{2}$; May 3, $3\frac{1}{2}$. The variations to this point are due almost entirely to weather conditions. The above figures are gross amounts, no allowance being made for evaporation during the night, which varied largely according to the quantity gathered, and was from $\frac{1}{2}$ to 3 pounds.

General Correspondence

A NEW METHOD OF INTRODUCING

The Various Methods Considered; the Odor Theory—is it a Fallacy?

BY ARTHUR C. MILLER

Legion is the number of plans for introducing queens, and he is a rash man who claims to have found a new one; and yet perhaps the unexpected may have happened here.

The "direct method" was the first one used; and, if memory serves, Reaumur was the man who used it. It was years after he had passed away that the caging plans arose. Who began them may perhaps never be known, for, like Topsy, they seem to have "just growed." But growing and spreading and varying as they have, they have by no means brought satisfactory results; on the contrary, so great is the loss by all cage methods that the beekeepers are few who are not looking for a better way. All of the cage plans are based on the theory that the odor of the queen governs her reception—that is, if she is confined in a cage placed in the colony to receive her until she has acquired the hypothetical odor of that colony she will be safe when released. But, as all experienced beekeepers know, too many times the facts do not prove the theory.

ODOR NOT THE GOVERNING FACTOR IN INTRODUCTION OF QUEENS.

Colonies do have individually characteristic odors, some of which are such that the human nose of fair acuteness and training can detect them. If the human nose can distinguish between certain colonies, then surely the bees, with their wonderfully acute sense of smell, must be able to distinguish between their own and a strange hive. But because the individual bee can recognize the home by odor, it by no means follows that the colony can recognize the individual worker by her odor. On the contrary, when the bees of an apiary get to work on any particular kind of flowers, whether clover, basswood, buckwheat, or other flowers, the bees mix freely. To illustrate: In an apiary of thirty odd colonies there were three distinct and easily recognized strains of Italians and one of blacks. The season until mid-July was poor, the bees getting but little more than a living. An examination of the colonies then showed very few bees in them that were not raised there. There followed a heavy flow from *Clethra*, and within a week every colony had a very considerable part of its population made up of all the different strains. Had the bees' sense

of smell gone wrong? Or is the odor factor of less importance than we have given it?

DIRECT METHOD OF INTRODUCTION.

For many years the writer has used some form of direct introduction with queens, and only occasionally has used a cage. In the beginning the "fasting plan" was carefully followed; then, little by little, it was modified and changed, until ultimately all sorts of ways were used for running in the queens. The system which he now uses most of the time, and which never fails, is as follows: A colony to receive a queen has the entrance reduced to about a square inch with whatever is convenient, as grass, weeds, rags, or wood, and then about three puffs of thick white smoke—because such smoke is safe—is blown in and the entrance closed. It should be explained that there is a $\frac{7}{8}$ -inch space below the frames, so that the smoke blown in at the entrance readily spreads and penetrates to all parts of the hive. In from fifteen to twenty seconds that colony will be roaring. The small space at the entrance is now opened; the queen is run in, followed by a gentle puff of smoke, and the space again closed and left closed for about ten minutes, when it is reopened and the bees are allowed to ventilate and to quiet down. The full entrance is not given for an hour or more, or even until the next day.

The queen may be picked from a comb and put in at the entrance with one's fingers, or run in from a cage just taken from the mails, her attendants running along too. The result is the same. The alien queen and workers are quite as much at home as the real owners of the hive. It makes no difference how long the colony has been queenless, whether just dequeened, or so long that laying workers have infested it.

Right here two conditions should be cited, or beekeepers not familiar with bee behavior may sometimes experience trouble. Colonies with sealed queen-cells or with virgin queens will sometimes supersede the new queen, particularly if that queen has been kept from laying for some days prior to her introduction. A queen taken fresh from the combs where she is laying freely will generally cause the destruction of the cells or the virgin. Different strains of bees and different colonies of the same strain behave differently toward a plurality of queens, or queen and cells. For example: A good populous colony late in September had been dequeened, and had built half a dozen or more queen-cells, most of which were allowed by the bees to hatch. October 14, ten

days after the cells hatched, a virgin queen was removed, and a fertile queen, which had been caged for 48 hours, was run in. The next day the fertile queen was moving quietly over the combs as was also another virgin. The bees had tolerated for ten days a plurality of virgin queens, and later a fertile and a virgin queen. Of course, this is somewhat unusual, and may partly be due to the lateness of the season, breeding having stopped in most colonies.

To colonies long queenless—particularly if suspected of having a virgin queen—it has been found advantageous to give a comb with eggs and young larvæ just before running in the queen. Queen-cells may be looked for and destroyed or not; but so far as the writer has experimented it is not necessary to destroy them, the bees attending to that. If, however, the colony is populous, and the honey is coming freely, a swarm may result if the cells are not destroyed by the beekeeper. More exhaustive observation is needed in this line, however, before it is wise to make positive statements. But with a virgin present, the giving of eggs and larvæ will almost invariably cause his disappearance. And it is impossible to ensure the safe introduction of a virgin to a colony having eggs and larvæ.

The loss of virgins in introducing is due either to the cause above cited or to their running out. To prevent the latter trouble it is found best to run in the virgins near nightfall, when all the bees are in, and then plug the entrance with a leaf or leaves. By morning the leaves will have wilted so the bees can get out, and matters will proceed normally.

It is the writer's preference, in introducing laying queens, to dequeen the receiving colony immediately before running in the new queen.

The theory of the cause of the success of the "direct method" here described is this: Bees in distress, whether workers, drones, or queens, know no enemy or alien, and each one is turning to some other for "help" or food, and every bee which comes within the influence of the uproar of a distressed colony seems to be seized with the same emotion. The bees with the queen in the cage, as soon as they are placed at the entrance, evince every sign of the same disturbance as shown by the bees of the colony, and it takes but a gentle puff to send them in.

The closing of the entrance after the queen is in is to ensure the distressed condition throughout the entire colony, and keeping it closed for the ten or fifteen minutes is to prevent too speedy relief. Then, too, if the full entrance were opened, the

bees might pour out in a mass, and cause bother; whereas by opening only an inch, few rush out before systematic ventilating is taken up.

The inexperienced and the thoughtless need to be cautioned as to two things, namely, closing in a full colony without giving the bees room to spread into and get off from the brood, and closing in a full colony sitting in the sun in the middle of a sweltering day. The skilled bee-master can do both of these things; but he does not do either of them if it can be avoided. And when he does do them, he stays right on the job, keeping eyes and ears open. The inexperienced should also be warned against running virgins into full colonies and closing them for over night. It is poor policy to give a virgin to a full colony at any time. It is much better practice to mate the young queen from a one or two frame nucleus.

It will be well, perhaps, to mention another item in the behavior of introduced queens. It is not unusual to find that a queen which has been given to a colony for some time queenless—say until all larvæ are sealed, or nearly ready to seal—fails to lay, even after she has been in the colony for a week or more. This is particularly so when the queen has been for a long time caged. To start her to laying give the colony a comb with eggs and larvæ of various ages, and with or without the adhering bees. In from 24 to 48 hours the queen will begin work.

The writer has run in hundreds of queens by various "direct methods," and has found the system here described the best. He believes it, as a whole, to be original with him. Its trial by all beekeepers is urged, for it seems to be an easy solution of a much-vexed problem.

It may be contended by the champions of the odor theory that the shut-in smoke imparts a new and uniform odor to the bees of the colony and to the new queen, and that the success is due to that. This is plausible; but the same success can be obtained by agitating the colony by closing the entrance, pounding on the hive with the closed fist until the bees are roaring, and then run in the queen. It is as uniformly successful as the use of smoke, but not quite so quick, and a bit hard on the fist.

Providence, R. I.

[Our correspondent has for several years believed that the odor theory for introducing has been overworked. He is possibly right. It is a fact that can not be denied, that there are several conditions that must be right before successful introduction can be accomplished. We have held that a like

odor is one of the conditions; but it is not the only one. The caging method of introducing is the one commonly recommended by the commercial queen-breeders to their customers. It is simple, convenient, and in most cases it gives good results. In our own apiary it rarely fails. Why do we believe in the odor theory? We may cite a few instances that will help to explain our position:

The ordinary queen that has traveled from a hundred to a thousand miles in the mails acquires a variety of odors that are foreign to the inside of the hive. It is well known that a queen from the mails is harder to introduce than one out of the same yard, especially if the latter is introduced while in the height of her egg-laying from a vigorous colony. The odor of a fresh-laying queen is an important factor in successful introduction. The bees know that she has been recently at her job. Indeed, she has so much of the general colony odor that they may not know that a change of queens has taken place. In this connection we recognize that there may or may not be a specific colony odor; but we believe there is. We will refer to this later.

Now, then, the object of caging a queen just from the mails, before letting her loose, is to let her get rid of the variety of odors foreign to a hive, and at the same time let her acquire a general colony odor. The object of caging is not alone for the purpose of getting the odor right, but for the purpose of letting the queen get out of her confinement quietly and without disturbance. When the queen and the bees eat out the candy, she works herself into the presence of her subjects so gradually and so easily that there is no disturbance, and she begins her duty shortly as if nothing had ever happened. The object of caging then is for a twofold purpose—like odor, and entrance into the colony without disturbance.

We have recommended the caging in preference to the various methods of direct introduction because we believe that the average beginner will succeed better with them. The method described by our correspondent may be better, but requires an exact procedure, some details of which the average novice and some veterans might inadvertently omit.

A little way back we spoke of the importance of a like odor in a colony. We have for years practiced what we call dual and sometimes plural introduction—that is to say, there may be two or more virgin queens caged at the same time in a nucleus. Virgin No. 1, caged first, will be released. If ac-

cepted she will soon be laying, when she will be removed and No. 2 is released. She has been in the hive or nucleus for several days; has the same odor as the queen just removed. No. 2 begins to lay, when she is finally succeeded by No. 3, and so on the process of caging and removing proceeds. While one queen is getting ready to lay, the other is acquiring the nucleus or colony odor.

Now as to the question whether a colony has an individual odor. We do not know how the inmates of the hive would recognize that the outside bees were robbers unless there were an individual odor to each colony. Again, in uniting, two strains of bees will often fight, sometimes utterly annihilating each other. A little tobacco smoke or even common smoke obscures the distinct colony odor so that all smell alike of tobacco or common smoke. Mr. Miller possibly holds the view that the disturbance arising from the use of the smoke brings on a condition of demoralization that obliterates the fighting qualities. We admit that on this point he may be right. Neither do we say that he may be wrong in regard to the odor theory in the general subject of introducing.

Right in this connection we believe that the plan here outlined by our correspondent for direct introduction by the use of smoke is a good one; but it is our opinion that two elements—odor of smoke and disturbance—make up a *combination* that insures the success of the plan, although we admit that either one alone would be sufficient in most cases.

There are several interesting facts that Mr. Miller brings out in his valuable article to all of which we give assent, except that we attach more importance to the odor theory than he does, and at the same time we believe that the caging plan for the novice is the safer one to follow. The average beginner might make the mistake of closing up a colony over-populous on a very warm day, and that would make trouble. It is a little difficult to tell him when he may and may not do this. But almost anybody can follow the directions to lay the cage on the top of the brood-nest, and let the bees do the rest.

In this connection we believe the push-in-the-comb-cage plan of introducing would be better than the eat-out-candy plan; but we have hesitated to give it to our customers for fear that they might not get the cage properly adjusted on the comb.

This is a good question for discussion, and we should be glad to hear from others. —Ed.]

IN MEMORIAM OF OLIVER FOSTER

BY WESLEY FOSTER

Oliver Foster was born in Grant County, Wis., March 21, 1857, and died March 12, 1913, at Boulder, Colo. When eleven years of age he moved with his father's family to Mr. Vernon, Iowa, where he grew up and went into beekeeping and queen-rearing while still a young man. His first swarm was hived from a stump near his home when he was fourteen. The year 1879 was the date of his first queen-rearing operations and of the handling of supplies in quantities.

About the year 1881 he invented a comb-foundation press, and he sold a good many of them. Mr. Doolittle wrote him not long ago that he was still using the outfit, and that it was doing good work. The following description of the machine is from his circular printed at the time:

FIG. 1.—The object of my invention is to furnish a very cheap machine to mold foundation directly from melted wax. The mold, AA, consists of two plaster-Paris plates in strong iron-braced frames, hinged together. The melted wax is sprinkled over the right plate by drawing the fountain across and back (the fountain is now made very light). The wax pours from the row of holes as the fountain is drawn back with the handle raised. This is done with the right hand. The mold is closed with the left hand; and the surplus wax, if any, passes into the water in the tank. The fountain is left in the wax while the mold is opened and the foundation removed. As the plates lie in water they are constantly cooling and moistening; hence no soap or other lubricator is needed to prevent sticking. The operation is very easy and simple. I use the best patterns, and make perfect casts every time. One set of casts will make about 200 lbs. of foundation. Some say more. The foundation can be made thick or thin on the same mold, from 5 to 20 square feet to the pound. The very light is made by pressing small thin sheets, say 4 x 6 inches. A lever is used which I "throw in." The foundation is not quite so perfect in form as some; but the bees use it just as well. Full instructions sent with machines. The mold weighs about 20 lbs.; whole outfit, 50 lbs.

Mr. Foster also invented and patented a honey case and clamp made to be used with the four-beeway section. It was designed to give the bees the freest possible communication from top to bottom and throughout the super. Page 450 of "Langstroth on the Honeybee" quotes several paragraphs from his booklet which I am inserting here. It will show that he studied the problem of comb-honey production carefully and was original in his findings.

There should be free communication between the sections in every direction. They should have deep slots on all eight edges so that the bees can pass freely over the combs from end to end of the case, as well as from side to side, and from top to bottom. You may not appreciate the importance of this until you have tried them. When we take into consideration that the object on the part of the bees in storing up honey in summer is to have it accessible for

winter consumption, and that in winter the bees collect in a round ball, as nearly as possible, in a semi-torpid state with but little if any motion except that gradual moving of bees from the center to the surface and from the surface to the center of this ball, we may imagine how unwelcome it is to them to be obliged to divide their stores between four separate apartments, each of which is four inches square and twelve inches long, with no communication between these apartments.

About 1885 he was carefully studying comb-honey production, and the result of his investigations were printed in a little book, "How to Raise Comb Honey," a copy of which I have never seen. If any of the readers of GLEANINGS have a copy I should like to know of it.

In 1894 he moved two cars of bees—180 to 190 colonies—and equipment to Las Animas, Colo., from Mt. Vernon, Iowa. He



The late Oliver Foster, pioneer beekeeper, inventor, and manufacturer.

reached Las Animas in May and harvested about 70,000 pounds of extracted honey that season—the largest average per colony he ever had. This crop was also the whitest honey he ever produced, and did not granulate in the sixty-pound cans for a year—remaining clear and liquid. This is something of a point for alfalfa honey.

The following spring Mr. Foster moved the rest of his bees from Mr. Vernon, Iowa, to Las Animas. His bee-supply and queen-rearing work was given up for extracted-honey production, and he also dropped most of his experimental work.

In 1903 he sold out at Las Animas and moved to California for his health, but re-

turned to Colorado in 1905, locating in Boulder, where he and his family have lived since that time. During his residence in Boulder he did more experimenting, and some of his ideas were of much benefit to himself and to other beekeepers who adopted them.

Throughout his whole life he had to save his strength, never being very robust, and for this reason a great deal of work had to be done by hired help. He has been especially successful in leasing bees to men who have worked under and with him.

At the time of his death he owned and was interested in about fifteen hundred colonies of bees in three different States, five systems of out-aparies, and fifteen locations. His net income from leased bees has been between 12 and 15 per cent for a term of about ten years.

He has belonged to the Methodist Church since a boy, and has filled every position in the Sunday-school, from teacher to superintendent. At the time of his death he was a member of the official board of the First Methodist Episcopal Church of Boulder.

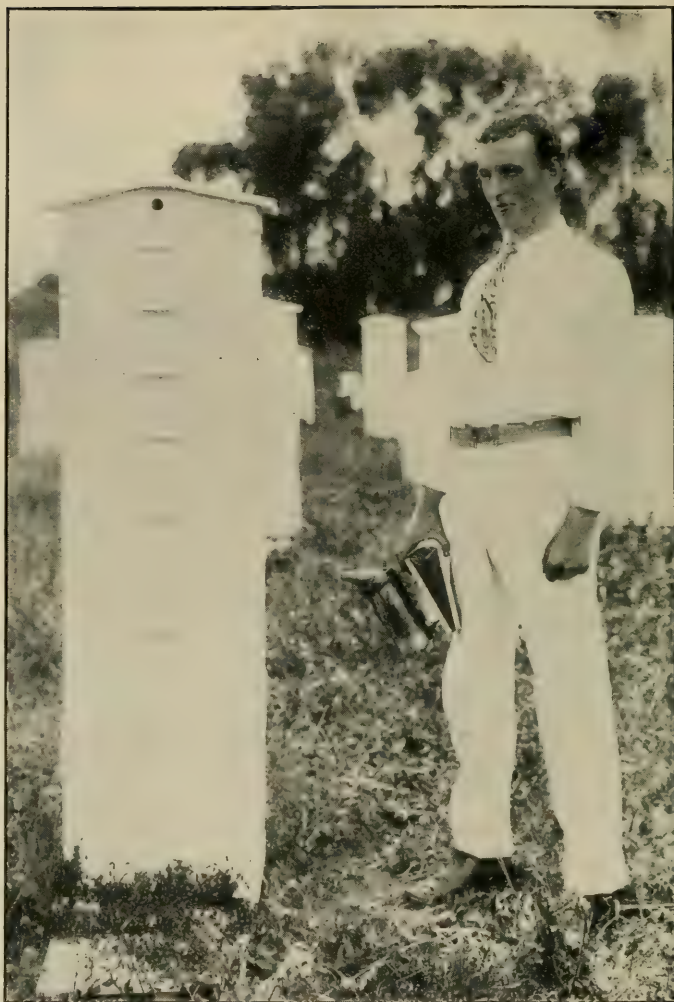
Boulder, Colo.

ANNUAL FIELD DAY OF THE CANTERBURY BEEKEEPERS' ASSOCIATION

BY E. G. WARD

The Canterbury Beekeepers' Association held its annual field day at the apiary of Vice-president R. N. Gidley.* The party went by drag about 27 miles from Christchurch. The weather was very warm, but ideal for the purpose. After being welcomed by the host, lunch was partaken of and

* A picture of this apiary appears on our cover for this issue.—Ed.



Mr. R. N. Gidley, of New Zealand, and one of his best colonies which had stored 227 pounds up to the time the picture was taken.

an adjournment made to the apiary, where the government inspector, Mr. L. Bowman, gave demonstrations in modern methods of handling bees, and answered a number of questions on bee subjects. Mr. Gidley opened some of his best hives, and explained his methods of securing a large crop of honey. During the day the president gave a short address explaining the objects of the Association. He also spoke of the interest taken in bee culture by the government. The necessity for co-operation in the disposal of the crop was touched upon by both Mr. Bowman and the president. Mr. A. Ireland, a past president of the association, also gave an address on similar lines, and on his motion a resolution was passed affirming the principle of co-operation, and leaving



Field meeting of the Canterbury Beekeepers' Association at the apiary of R. N. Gidley, Lakeside, N. Z.

the matter of the formation of a company on these lines in the hands of the executive of the Canterbury Association. A vote of thanks to the host was carried with musical honors, and the party left for home after spending an enjoyable day.

Christchurch, N. Z.

SHIPPING FRAGILE ARTICLES

Some Advice from One who has had Experience

BY JAY W. GEE

Continued from last issue.

The matter of glass in the case has been frequently mentioned in GLEANINGS. I do not believe that the use of glass makes any difference one way or the other, except to weaken the case. The average day laborer on a transfer platform has little time and no inclination to be peering through either a two-inch or three-inch hole in any of the boxes he handles to see the contents. If he be a negro there are two things he always knows from outside appearances—shoes and whisky; and if you don't look out, Sambo is going to have some of both. If one is compelled to ship by freight, the honey should be thoroughly and tightly packed in corrugated paper or something similar to take up shock and vibration in a very strong case; and you can not make them too strong. If you have a carload,

have your agent lend you his instruction-book governing the loading of dynamite, and brace the honey exactly the same as you would for that explosive. In switching, cars get some terrible licks unintentionally. I have seen them hit so hard that you could see them bow up in the middle apparently six inches.

GLEANINGS is against shipping by express, I know; but as the express business will soon be in the hands of the government, perhaps Brother Root will relent. I am just stating my experience. At one place where I was employed for several years I handled the express on commission, having a large transfer to take care of also. After I had been there about two years I had meantime been experimenting with a few hives of bees, and had taken off about one hundred sections of snow-white honey. There was no local sale. In fact, I gave my neighbors all they wanted. The best price that the nearest town offered was ten cents. I had a relative in the Texas Panhandle in a good town, who offered to take all that I would send him, and pay twenty cents. How to get forty or fifty pounds to him was the question. One thing the public as a rule does not know about the express—all employees are under bond, and held strictly accountable for the safe keeping of the property in their care. Every claim that the express pays is traced down to the em-



R. N. Gidley, New Zealand, demonstrating his method of securing a large crop of honey.

ployee at fault, and he is compelled to pay it. There are very few claims that are not saddled off on some one. Hence you may be sure that the express man gives attention to every thing in his care.

In my two years' experience I had noticed that packages received attention in *inverse* ratio to the care with which they were packed. For instance, if I ran across a very strong and well-made box I would pitch it from one end of the car to the other; but if the parcel happened to be a frail hat-box, with the merest strip of crating around it, or a splint basket lined with cotton, and marked "Eggs," I handled it with the greatest care, and so did all the rest, and so they do yet. You can't turn a splint basket over; you can't pile any thing on top of it; and you have to handle it carefully at all times. That gave me my cue. The saloon man across the street gave me several corrugated-paper cartons of the size that he used to ship half-gallon jugs in. Seven sections of honey, firmly tied together with the top sides up, and just a few thicknesses of paper around, made a compact package that exactly fitted in the carton. I then sealed the carton, put some straw in a common five-cent splint basket, and put the carton in it, this also making a snug fit. Then I tied the carton in firmly so that there was no possible chance for it to work loose. Finally I wrote in my ordinary hand, on one edge of the carton, "Honey!

handle with the same care as"—and then in large printed letters that took up the rest of the space of the carton—"Eggs." The object of this was not to deceive, but to be sure that every one handling would see at a glance the fragile nature of the contents. Of course the shipment was billed "1 bsk honey;" and as the entire package weighed just a little over nine pounds, and comb honey, owner's risk of breakage or leakage, takes a special rate with a minimum charge of thirty-five cents, this sample cost me just that amount. I could have sent it much further for the same money. As it was, it had to go to New Orleans for the first transfer, then across Louisiana and Texas. After this long trip it reached its destination in perfect condition.

My next shipment consisted of four cartons placed in a box into which they fitted, with hay in the bottom and around the sides. The top was open except that wire was zigzagged across to keep the carton in, and half a barrel-hoop was used for a handle, also as a guard to keep the box from getting tilted over on one side or getting turned upside down. This and subsequent shipments made in the same manner also went through without a single comb cracked or bleeding. My recollection is that the four cartons complete weighed forty pounds, and the special rate was \$2.10 per hundred, or 84 cts. for each shipment. Articles that take a special rate by express take pound

rates—that is, you multiply the pounds by the rate per hundred; and in shipping any thing by express one should always find out whether the article to be shipped is entitled to that rate.

When the parcel post is prepared to give the matter entrusted to it the same care that the express companies do (and that time will not be any longer than it takes the Department to work all the details out) I believe that the method I have here outlined will be the best for small shipments of comb honey. One can then have any number of customers in all parts of the country, and can send five, ten, or more pounds of honey with perfect safety at a saving to both producer and consumer. By then, too, Brother Root will be making or supplying baskets and cartons to the trade, so that it will not be necessary to call upon the saloon business for help.

Several times while in the express business I accepted shipments of comb honey in strong boxes and in the ordinary glass-front shipping cases. One such, going only ten miles, was so injured that the contents had to be sold as bulk comb; and another going one hundred miles had leaked so that it could hardly be handled. I never knew of any that entirely escaped.

The following are the essential points in handling comb honey: First, the comb should at all times be top side up, just as it comes from the hive; second, the container should be such that all vibration is taken up; and, lastly, the package should be of a kind that all parties who handle it would know at a glance that it required the greatest care. In case the shipment is to be made by freight, the package should be strong and well braced; if by express, in as light and fragile but as well packed a container as possible; if by mail—wait a while and let us have a little experience first. Ultimately, however, I believe we can ship by mail the same as we do by express now.

STEAM FROM A TEA-KETTLE FOR THE UNCAPPING-KNIFE

BY J. L. BYER

For the past few seasons we have used the steam-heated uncapping-knife, and like it very much, particularly if the honey is very thick and the weather none too warm. The picture shows my son in position for operating. But with snow on the ground and a heavy cap on the operator, it does not look very "seasonable." However, it shows very plainly the outfit we have worked with which has given good satisfaction. The kettle shown is only a small one, holding



A boiler for the steam-knife, made from a tea-kettle.

about a quart of water. The spout was removed, and one from a common machinist's oil-can was soldered on instead. It was placed in a more upright position as will be seen; and as it tapers toward the end, the rubber tube fits on closely. To keep steam from leaking around the lid of the kettle, two or three thicknesses of cheesecloth were put over the opening and the cover then pressed in. Small as this kettle is, once filling with water will last half a day. A single-burner oil-stove is used, and this has given sufficient heat, with the exception of a couple of very cool days last



350 lbs. of wax from the cappings from 35,000 lbs. of honey—one pound of capping wax to 100 of honey extracted.



Sawing "bee" in Ontario.

fall, when extracting buckwheat honey. But as a two-burner stove of this pattern costs less than a dollar, one can easily use the larger size if desired. The cappings are allowed to drop into the regular style of uncapping-can, and after draining well are left to be attended to in winter season, when we are not so busy. They are then either washed and the sweet water used to make vinegar, or else the cappings are run through the capping-melter; and the honey is then sold with the buckwheat crop the following season.

The picture shows 350 lbs. of wax that we have just run through the Hatch-Gemmill press, being the product from the cappings from 35,000 lbs. of honey. Although the cappings were pretty well drained last summer, when running them through the melter this winter we got about 600 lbs. of honey. Really it was a surprise to us as to where it all came from. It has a cooked taste; but that from the clover is not a bad honey after all. It will be used for honey vinegar in the spring, while the darker grade will go, as we have already stated, with the buckwheat honey next season.

Some may wonder why we run the cappings through the press, and I might say that there are always some bits of comb, etc., that make it necessary to strain the wax any way, and, all things considered, we think we can make better time and a better job by putting it through the press and finishing at one operation.

The sawing "bee" shown in the picture

is not directly related to *Apis mellifica*, of course, and yet indirectly the operations depicted have had a great influence on bee-keeping. As we drive through the country, the denuded landscape makes us painfully alive to the fact that soon there will be no more of these sawing-bees, as basswoods, maples, and other trees are fast disappearing. Not so long ago it was the custom for nearly all the farmers to have a year's supply of fuel cut at these gatherings, and often in the evening a social time would be spent by the happy young folk. Now the farmers who burn wood in our section are the exception, as coal and kerosene have replaced the wood. More than that, the coal now bids fair to be soon superseded, as everywhere you hear the farmers and others speaking glibly of "hydro-electric" as the coming source of fuel, light, and power in the near future. Surely we are living in a changing age; and the beekeeper, no less than the farmer and artisan, has to adapt himself to the changed conditions and govern his operations accordingly. No, the young women do not cut the wood here in Ontario, as the picture might lead one to believe, but who will look into the smiling, healthy faces and dispute the fact that they would be able to do so, if circumstances should ever put them to the test?

Mount Joy, Ontario.

[Rendering well-drained cappings in a melter generally results in scorching the honey somewhat, owing to the fact that the

amount of honey in proportion to the wax is small. We are surprised to note that, out of the total weight of 950 pounds of drained cappings, nearly two-thirds of the weight was honey.—Ed.]

SOME CAUTION IN THE TREATMENT OF DISEASE

BY J. M. BUCHANAN

I must take issue with E. D. Townsend, pages 760, 813, Dec. 1, 15, as to the use of combs which have contained American foul brood. While it may be possible that all the diseased matter may be cut out, still it is impossible to know when this is done; and it seems to me that it is running a great and unnecessary risk to use such combs. The germs of the disease are carried in the honey to all parts of the hive; and who can say, without a careful microscopic examination of every cell, where these germs may be? It is not alone in the cells that have contained diseased brood, but in many cases it may be above the excluder, remote from the brood-nest.

While brother Townsend may be able to control the disease in this manner—that is, by cutting out the diseased portion and using the rest of the comb—still the rank and file of careless beekeepers will undoubtedly make a mess of it, if such practice is sanctioned by the bee journals. Like J. E. Crane, in my work as inspector I have found all kinds and conditions of beekeepers, and by far the majority are too ignorant or too careless to treat the disease suc-

cessfully by any of the modified methods. The best and safest way, I have found, is to recommend shaking into an empty hive and carefully burning or burying all of the frames, combs, brood, and honey from the old hive. The hive may be saved if properly scorched out.

USING COMBS FROM A SUPER OVER A DISEASED COLONY.

Last year the editor stated that the combs from a super over a diseased colony might be used with safety. To give the matter a test I took three combs from over a diseased colony. They were fresh combs and above an excluder, and I gave them to a clean colony late in the fall. As soon as brood was started in these combs in the spring, the disease appeared, showing that such combs are not always safe.

DON'T FOOL WITH AMERICAN FOUL BROOD.

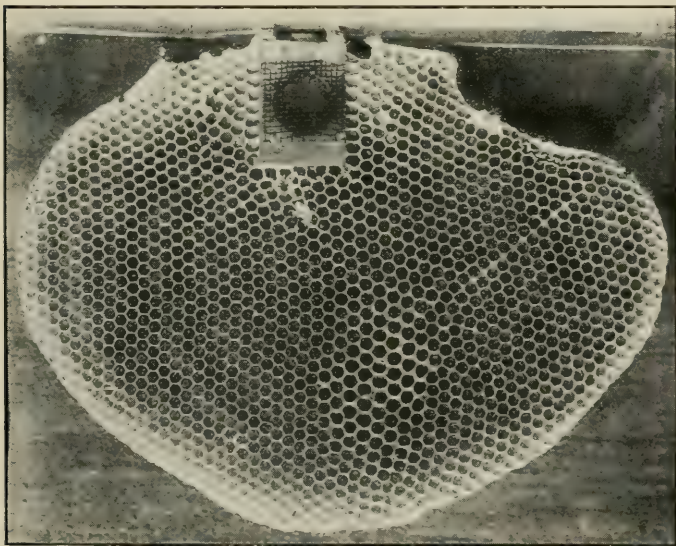
While a careful manipulator may experiment with European foul brood in many ways with impunity, it does not pay to "fool" with American foul brood in an apiary where there are healthy colonies. There is much danger of robber bees spreading the disease; also danger of the operator carrying the infected honey on his hands or clothes to other colonies.

I have found carbolic cloths a very valuable aid in the inspection and treatment of diseased hives, as they are the best preventive of robbing that I know of. Old burlap bags are cut up and sprinkled with crude carbolic acid, and spread over the hive or over the combs that are removed. By the way, these same cloths when dry make the most satisfactory smoker fuel.

It seems too bad to destroy nice fresh combs that, we fondly hope, might be clean; but it is safest in the long run, where one is not prepared to render them entirely out of the reach of bees; and few beekeepers are thus prepared. I have burned hundreds of nice straight all-work-er combs, and buried the ashes; and, while it hurts my feelings to do so, still it is "good riddance to bad rubbish."

DO NOT USE MAILING-CAGES FOR INTRODUCING.

Another careless practice that should be avoided is the in-



Piece of comb built in six days after a queen was introduced.—
From E. G. Ward.



How clover is getting a spread in the wild lands of the Northwest.

roduction of queens in mailing-cages, when it is impossible to say that the candy in the cage is not infected. I suppose nearly all queen-breeders are reasonably careful in using clean honey to make candy; but there is always a risk to run; and it is easy to be on the safe side by using a clean cage, if one must use this antiquated method of introduction, being careful to burn the mailing-cage, together with the escort of bees. By using the direct method of introduction the danger of infection is avoided, and at the same time the safe acceptance of the

new queen is insured. This method has been given several times in GLEANINGS, and is in use by hundreds of up-to-date beekeepers, so it is useless to describe it here.

In the treatment of brood disease the safest way is none too safe; and just as we should avoid the appearance of evil, we should take no chances with American foul brood, knowing that the vast majority of beekeepers are none too able to cope with the disease at the best.

Franklin, Tenn.



Sheep clearing brush lands for clover crop.

FORMER FOREST LANDS BEING CONVERTED INTO CLOVER-FIELDS

BY J. L. GRAFF

Sheep and clover are working a dual part in the vast tracts of cut-over and burn-over lands in Minnesota and other northwestern territory in which the last of the lumber is fast disappearing. The promise of increased fields of clover bloom has much in store for the beekeepers of that region.

Sheep are being brought from Montana and other far-western ranges to feed on wild land for the purpose of clearing out the brush preparatory to the sowing of clover. It is claimed that twenty ewes will clean up five acres in as many months, and leave the ground so clean that, when the frost is coming out of the ground the following spring, seed will catch without any other soil preparation, and a good stand of clover will be secured in this way. At least two crops are cut in one season. By fencing small tracts and changing the sheep from one tract to another, the patches are well cleaned and the sheep take on a sufficient quantity of mutton to sell for much more than they cost when they were turned into the fields.

One of the illustrations shows the character of the land being cleaned up. No attempt is made to take out the stumps; the seed is sown between them. In the lower right-hand corner is shown for contrast a small section cut from a photograph of one great field of clover in bloom. From this corner picture one may imagine what kind of improvement could be seen if the clover were to spread over the whole tract. In one county alone in Minnesota, efforts are now being made to clean up two million acres.

Chicago, Ill.

ENTRANCE AT TOP OF HIVE AN AID IN SWARM PREVENTION

BY I. W. BECKWITH

I have read several items in the bee journals, in which the writers complain that bees are adverse to going up through the queen-excluders with their loads of honey, and so deposit too great an amount in the brood-chamber, thereby crowding the queen and causing swarming. Some beekeepers call the excluders "honey-excluders," and thereby denounce their use.

I thought that, as the bees object to carrying their honey up through the excluders, perhaps they would object to carrying it down through them, and so I might take advantage of that propensity by reversing

the process. So when I set my bees out in the spring I closed the fly holes at the bottom of the hives and moved the lids back so as to allow entrance at the top. It is best to do this, on setting them out, before they have become accustomed to going in at the bottom. If they become accustomed to using the bottom exit it will be necessary to close it tight so as entirely to exclude the light; and even then the bees inside will crowd that part of the hive, and those outside will try to go in there for a month after the change has been made.

As soon as a super is needed, take the escape out of the escape-board and tack a piece of queen-excluder over the hole; put it on the hive, and a super having an entrance at the front end. I prefer to have this piece of queen-excluder near the front end of the board so that the bees may find it more readily. It may be well to put the escape-board in place at first, leaving off the zinc until the super is needed.

The result of my experiment was not only that the honey was stored above (only enough carried below to feed the young, the queen having unlimited room). The bees raised so much brood that they were soon very strong in numbers; and before the season was over they occupied two extracting supers and then one half of the bees clustered on the outside of the hives, there not being room inside, and not one of the 22 colonies so treated offered to swarm.

I wanted to divide some of them, and so put brood above for them to raise queens *a la* Doolittle; but they would start no queens; and when I gave them cells nearly ready to hatch they either tore them down or the few that they allowed to hatch soon disappeared, so I conclude that I have unwittingly solved the swarming problem.

This was three years ago last summer. I then quit the bee business and left Wyoming for this State.

I used extracting-supers, having some old brood-combs containing pollen. I am not sure but the bees may have stored some pollen above; but if so it was only near the entrance to the brood-chamber.

In order to give my bees more ventilation than this arrangement would allow I tacked wire cloth over the lower entrance.

Rodeo, N. M.

[A number of beekeepers at one time or another have used upper entrances—most of them, however, using them in connection with a lower entrance also. The objection to having but one entrance, and that at the top, is that in localities where the nights are cool there is danger of having the bees desert the supers, and also that the brood

may become easily chilled. Then at certain times of the year it seems to be almost imperative that bees have an entrance at the bottom of the hive to facilitate carrying out dead bees, debris, etc.

The experiment described by our correspondent is an interesting one, however, and in warm climates would probably be worth trying. There is no question but that, in very hot weather, an upper entrance in addition to a lower one facilitates the storing of honey and saves time and bee energy. There is also somewhat less danger of swarming on account of the added amount of ventilation afforded.—Ed.]

DOES THE ADDING OF EGGS AND LARVÆ TO A COLONY WITH A VIRGIN SOMETIMES CAUSE HER DISAPPEARANCE?

BY JOHN H. JOHNSON

Dr. Miller, p. 718, Nov. 15, asks that some one settle this question. The doctor had evidently thought the question settled long ago. And now comes one, Arthur C. Miller, unsettling it, and making the doctor trouble. At Medina, Ohio, it seems the boys thought so too, as both Mr. E. R. Root and Mr. Mell Pritchard have endorsed the giving of eggs and larvæ. By the doctor's confession, that policy did poorly enough at Marengo. When it comes to prescribing it for the whole country (I mean no discourtesy), the doctor might better say, "I don't know."

If by giving eggs and young larvæ I lost 8 out of 17 virgins I too, like Dr. Miller, would want the question resettled. I am thoroughly persuaded that the season and the locality have much to do with the disappearance of virgin queens. The treatment that may do fairly well at Marengo and Medina may not do at all at Bangor, Pa., nor at Providence, R. I.

I kept bees for about 43 years, and raised my own queens and some to sell, for about 35 years. Beekeepers then, in this section, reared queens in nuclei and practiced artificial swarming to some extent. We strengthened both kinds, even while they had virgins, by giving eggs and larvæ. The loss of young queens was heavy, especially some seasons.

I observed that the colonies that swarm naturally rarely lose their virgins. About that time I also read that the giving of eggs and larvæ endangers the life of the virgin queen. That led me to decide that nature's way of having the stands eggless and larvæless at the time of the young queen's mating is the proper way. I now closely watched to see what treatment the bees gave

the virgins upon their return from successfully meeting the drone. I saw that the eggless and larvæless stands very rarely balled their young queens. But in times of dearth of honey, those stands having eggs and larvæ were veritable fiends at balling their newly mated queens. I found a few that the bees had smothered by the next morning. The dead queens were dry and glossy. Some of these balled queens were released by the bees, and became laying queens, with now and then a leg disabled or wings ragged. Most of those balled had that black glossy appearance as though they were varnished. I should like to hear from other beekeepers regarding their observations.

The past season I permitted 14 colonies to swarm naturally. There was a loss of one virgin among the 14. I reared in nuclei, I think, 26 queens with a loss of two virgins among the lot.

I should like to request that Dr. Miller try the eggless and larvæless method another season, with nuclei that have virgin queens, as compared with the egg-and-larvæ method.

Bangor, Pa.

HIVING A CLUSTER OF BEES FROM A RAIL FENCE

BY MRS. FRANK M'GLADE

After reading Mr. J. L. Byer's article, page 301, May 1, about hiving a swarm of bees on a rail fence, I thought another experience along that line might be interesting to the readers of GLEANINGS.

Early one morning in June a swarm of bees came out and settled on a barbed-wire fence near the beeyard. Soon after, another came and settled near the first. While I was busy hiving them, a third issued and settled above the two hives with which I was working. The first swarm went in all right; but when the third had settled so near the other hives, the second was not managed so easily. I finally succeeded in hiving them, however, and went to the house. On going out in the evening to remove them to a different location I found both hives empty with the exception of a few stray bees. Any beekeeper can imagine just how I felt. We looked everywhere for them, but in vain.

Two days later, however, just after dinner, my little son started down across the back lot in search of wild strawberries. As he was crawling through a hole in the old rail fence, he almost touched with his head a cluster of bees on the rails among the briars and tall weeds. He called to me to come quickly, saying that he had found the

bees. There must have been a bushel of them. I determined then and there to have them yet at any cost, even if I could find no one to help me. I realized that it would be useless to try to shake them off, so I pushed my way as close to them as I could and set a box near them. I stretched a sheet over the box down under the bees and started the smoker. I worked with those bees for three hours, but they seemed determined to cling to the old rail fence. I kept on using smoke, driving them toward the hives, which were full of old comb, as the former occupants had starved.

When one hive was so full that there was not room for any more bees I moved it and put another in its place. I again smoked them toward the hive. When a woman will, she will; and after three hours of work the bees were safely in the hives. I found that they had already started a comb on the fence. I kept close watch over them until evening, when I moved them to their future stands. I wore my veil, but my hands and arms were bare, and yet I had not received a single sting. The next day I removed a frame and placed a frame of brood in each hive. I found later that one colony had a queen which soon began laying. That colony produced over sixty pounds of honey, fall flow. The other soon raised a fine large queen, and they are the strongest colonies I have this spring.

I had quite an interesting chase of hide and seek with them at one time. After going through a hive three times I found the queen, so large that I wondered how I ever missed her.

Another time a bumblebee flew into the hive. How the bees did pounce upon it! They finally drove it out.

While I find the care of bees rather tiresome work, yet it is both interesting and profitable. It is a kind of work, too, which any woman can do if she will.

Hebron, Ohio.

SOME OBSERVATIONS ON THE MANNER IN WHICH BEES USE THEIR STINGS

Is it Natural for Bees to Lose Their Stings After Using Them?

BY WILLIAM BARNES

In December 1st issue, page 778, I noticed observations in regard to bees stinging each other. My own experience has been somewhat different, for I have noticed on two different occasions stings left in workers after being stung. One was during a case of robbing, and the other where a small swarm had entered another hive of

bees. There were dozens of bees with the stings left in their thorax and sides. I saw one bee with as many as three stings lodged in it. Time after time have I watched the effects of a fight since, but have failed to find stings left in the dead bees.

The other day (after reading the articles) a very small queenless swarm came and settled on a hive-cover; and as I had a very weak queenless colony I thought I would run the swarm into that hive so as to make them strong enough to be worth a queen if they would unite; but they didn't. They declared war, and fought it out to the bitter end. I watched the results, and examined the dead bees afterward, but failed to find even one bee with a sting sticking to it. I myself have never seen either a queen or drone with a sting lodged in it, but have often seen bees bluffing at stinging drones, but never really saw them do it.

I agree with the editor that it is not necessary for bees to lose their stings when using them against each other. I would also go further and say that I don't think it is in accordance with nature for bees to lose their stings when stinging any thing, as the loss of the sting is more often brought about by some disturbing agency other than the natural instincts of the bees. I should like to have some of you old hardened beekeepers take the time and trouble (yes, you will have some trouble to keep from smashing your little pets), when working among four bees, to give them a good test in regard to stinging.

If you see a bee (or feel it) alight on you and sting, don't move, but just grip what you have hold of and watch, wait, and suffer. You will see some funny antics (on the part of the bee) in her desire to free herself, which she will accomplish about eight times out of ten if you don't molest it in any way, something after the way in which they free themselves after stinging each other, only it will take much longer on account of having much tougher material to work on. Of course I am speaking of bees in their normal state, not those that have been stirred up to the pitch when they are just longing to throw away their lives on account of an unnatural state of things being brought about, such as dropping a frame of bees, overturning their homes, or stirring them up with your foot, etc.

In regard to bees stinging animals, the latter, on being stung, will invariably start to play up, thereby angering the bees into doing their best (or worst) by leaving their stings behind, and then trying to do the trick over again.

One remarkable thing in letting a bee extricate itself from your arm or whatever

part it has got hold of, is that the pain is most severe at first, and keeps on diminishing until it has freed itself, when a slight rub will let you breathe normal again, and you will hardly know that you have been stung.

Strand, N. S. Wales, Australia.

DO BEES LOSE THEIR STINGS WHEN STINGING OTHER BEES?

My experience leads me to say they do not as a rule. I have watched them closely, and apparently they insert only the extreme tips of the sting. Now and again one appears to get the sting too far in; and when they find themselves caught they appear to be panic-stricken, and make frantic efforts to withdraw the sting, with the result that they tear it out of their own bodies. If a bee stings a man, and is let alone, it will sometimes turn round and round; and apparently, by making the hole large enough, will be able in a short time to withdraw the sting; but I never saw them do this when attached to another bee.

MAJOR SHALLARD.

South Woodburn, N. S. Wales, Australia.

BEES DO NOT ALWAYS LOSE THEIR STINGS.

I have just read what Mr. Waugh says, p. 778, Dec. 1. When I kept pure black bees in box hives they always had a lot of drones. Many times I have seen the ground covered with dead drones, and they did not have any stings in them. Since I have been keeping the yellow bees I never see any dead drones. One day last summer I was extracting honey when a large bumblebee got inside of the screen cloth over the window. There were also a lot of bees there. When the bumblebee would get close to one it would try to catch it, but it would always get away. I thought I would have a little fun, so I put the bumblebee in a bunch of bees. They soon covered it. They had a tussle for a few seconds. It soon got loose from all but one, which held on for some time. In a few seconds after the last bee released it was dead, and not a sting in it.

I wonder how many of the GLEANINGS readers can say that there have been bees at their homes since 1838. The year that my mother was born in (1838), grandfather bought a colony in a box hive. He would always choose a few of the best colonies to keep, and kill the rest with sulphur. He followed this plan till his death in 1879. Mother kept up his plan till I began to care for the bees about 1885. I soon after adopted the plan of robbing them, as it was called. I kept this up until I began to use the frame hive in 1900, and it was the same

stock too. Mother never knew what it was to be on a place without bees, as they were brought here the year she was born. She lived in the house that she was born in till her death this year. Since I have been using the frame hive I have changed from blacks to Italians. I have read what the several writers have said about the light and dark colored bees. My experience is that the goldens are not worth much more than house flies; and the Holy Lands are worse than the goldens.

Havana, Ala.

J. S. PATTON.

On page 116, Feb. 15, Mr. Elias Fox says, "I have seen a good many queens and thousands of workers killed by being stung. I have yet to see the first bee with a sting lodged in it." Further on he states that he never was able to make a queen sting him, and asks if any one was ever stung by a queen. Now, both those things occurred at the same hive and on the same day in my presence, proving that, out of an infinite number of possibilities, great improbabilities and coincidences may occur.

I had been from home two days attending outyards, leaving an eleven-year-old daughter in charge to cage the clipped queen and let her go again as soon as swarm returned. She reported, among others, that "39" had swarmed both days. This morning I was at home and at work when "39" came out again. As we had been having wet weather for some days prior to the last two, I hardly expected to find the queen out again, for, in addition to their reluctance to come out when they find they can not fly, there was the possibility of her being killed by a virgin; but, contrary to my expectations, she was again found climbing the weeds and attempting to fly. I duly caged her and placed her on the alighting-board. After the return of the swarm I went over to liberate the queen, and noticed that there were no bees on the cage as usual—in fact, only about four or five bees were visible at the entrance. I removed the plug and laid the cage a few inches from these bees. Immediately after she left the cage one sprang at her and buried its sting in her thorax, and she was dead in 15 or 20 seconds—long before the contractions of the sting had ceased.

Looking through the hive I found several ripe cells, none empty, though the mandibles of one young queen were plainly visible cutting its way out. The bees were dark hybrids, and very cross, so I decided to re-queen from a nucleus, cutting the cells out. My little girl let the young queen run into her hand, as she had often done before. In

answer to her request to let this young queen live I explained my reasons for not wishing to perpetuate this strain, when she suddenly opened her hand and threw the queen in the grass, saying it had stung her, and pointed to the place where the sting had entered. I sympathized with her, telling her that she had had a unique experience, as queens were not in the habit of stinging any thing but a rival. She remarked that it did not hurt as much as a worker did.

B. B. BREWSTER.

Greenridge Marr, Canada.

In reading the Feb. 15th GLEANINGS to-night, page 116, I saw that Elias Fox wants to know if any one was ever stung by a queen bee. I have been. It was at the beginning of my apicultural experience. I had two (virgins) I think, in my left hand. There was war at once. Of course one went for the other. The other avoided the thrust somehow, and I received the sting just below the second joint on the second finger. It hurt severely. The queen that stung the other flew away; but I kept the other one, and I think she mated.

JOHN H. RISING.

Lestershire, N. Y., March 23.

ANOTHER STUNG BY A QUEEN.

Not wishing any more increase when a swarm issued, I hunted out the queen and intended to kill her. I caught one and pinched her head, and she stung me on the finger. This is the first and only time I was ever stung by a queen. She was a full-sized normal queen that had come forth with the swarm.

Kokomo, Ind.

ELI ROBERTSON.

GREASEWOOD OR CHICO

BY J. A. GREEN

Wesley Foster is evidently not well informed as to our desert flora, else I have been laboring under a misapprehension for many years. The plant which he illustrates and describes as greasewood on page 50 of GLEANINGS for Jan. 15 is not what is called greasewood here, but chico or "rabbit brush." Greasewood is one of the most common plants of the arid plains of the West, being second, I believe, only to sage brush. Here it is the principal one of the woody shrubs of the desert, giving place a few miles further west to sage brush. It is a straggling, seraggly bush, growing sometimes five or six feet high, though usually not over three. The wood is very hard; and, though it has no real thorns, the tips of the twigs are so sharp that the effect is about the same as though it were thorny.

The leaves are narrow and very fleshy. When young, stock browse freely on the green tips; and, though it has not a very high reputation as pasturage, it is, according to analysis, almost as nutritious as alfalfa. The blossoms, which come in early summer, are very inconspicuous, small, and yellowish-brown. The bees work on them very freely for a few days, getting considerable pollen and some honey, which, I believe, is very dark in color, though of good flavor.

Chico blooms late in the fall, resembling goldenrod in this respect as well as in appearance. The bees get quite a little honey from it, deep yellow in color, rather thin and poor in quality. It granulates very quickly, even in the comb; and the section of alfalfa or sweet-clover honey that is finished up on chico is not very much improved thereby, as the chico honey around the lower edges granulates long before the rest of the honey. The worst feature about it, though, for the comb-honey producer, is the intense yellow color of the pollen, which stains the surface of the combs over which the bees travel, besides giving them its smell, and to some extent its flavor. As this smell and flavor are very much like that of the common garden marigold, it does not improve the quality of the section honey which remains on the hive through its flow. On this account, many beekeepers remove the supers from the hive as soon as the chico begins to bloom. After the plant is through blooming, the appearance is very much the same, except that the yellow of the blossoms is changed to white. This white tufted appearance, somewhat like a rabbit's tail, probably accounts for its other common name of "rabbit brush."

Another slight error in this article, not of much importance to a beekeeper, perhaps, though it might be to a homeseeker, is the impression which it gives that peaches are raised by the hundreds of carloads near Fruita. Peaches are not commercially grown to any extent near Fruita, though apples are one of the main crops. The peach district begins fifteen or twenty miles east of Fruita; and it is here that hundreds of tons of the finest peaches grown in the world rotted on the ground last autumn, because, although we have one of the best organized fruit-shipping associations in the world, our system of distribution is so poor that it would not pay to ship these peaches, though thousands of people could not get any peaches to eat because the price was too high. Some time, let us hope, the producer and the consumer may be brought nearer together, to the advantage of both.

Grand Junction, Colo.

Heads of Grain from Different Fields

The Starvation Cure for Foul Brood; the Importance of Treating Promptly

I have a copy of your A B C of Bee Culture for 1905, and I wish to ask you about an article on page 170, second column, about half way down. You say, "When the bees begin to fall from the comb as if from starvation, they were fed." Does this mean that they were closed up in the hive after giving them sheets of foundation for foul-brood treatment?

Would you advise treating for that now, or wait until after the honey-flow? and about what date then would you advise?

I also intend to Italianize. Would you advise me to do this after the honey-flow too? I have five hives of hybrids.

Ashland, Ky., April 21. JOHN M. O'DW ER.

[Referring to the method of curing foul brood as given in the edition of the A B C of Bee Culture which you have, we would say that our idea was to put the bees in a wire-cloth cage or in a hive having a screen top so that the bees can get plenty of air while they are kept away from the combs, and during the period where they are being starved, until they just begin to drop down. If they were shut up in an ordinary hive tight, without any special ventilation other than that given at the entrance, they might suffocate; but nowadays we have a little more modern method of cure by which we do not have to starve the bees at all. We let them loose on frames of foundation. We are sending you under separate cover a copy of our booklet, "Diseases of Bees," and would refer you to the special treatment given for foul brood.

Always in bee diseases of any sort, especially American or European, we would advise immediate treatment. To defer the matter until after the honey-flow would only subject your other colonies to the danger of infection; and it is better to treat when the bees are not inclined to rob than at any other time. If the fruit-bloom is all over with you it might be advisable for you to shake your bees on to frames of foundation, as given in our booklet, along about sundown, or possibly a little later—just late enough so that robber bees would not cause any trouble. The combs themselves then should be thoroughly burned and the ashes buried.

The matter of Italianizing the bees can, perhaps, be deferred to advantage until after the honey-flow.

We should be very glad to have you come and see us at any time. Our apiaries are open to inspection, and beginners are always welcome, or any one else. When you come, make yourself known and we will see that a man takes you over the plant and gives you opportunity to see actual work among the bees. If you can stay long enough we will give you a chance to go out to the outyards where the men are at work.—ED.]

Another Plan for Running for Increase and Extracted Honey Both

I have fifteen hives of bees which I wish to increase to thirty. Twenty I intend to run for extracted honey, and ten for comb. Will the following plan work? When the colonies get quite strong I will give each a second brood-chamber filled with comb, or full sheets of foundation. Every few days I will reverse the brood-chambers, top for bottom. When the honey-flow comes on I will take one brood-chamber filled with the heaviest frames of brood, the queen, and some young bees, and set them on a new stand, leaving the hive on the old stand to raise a new queen. I will then give each a super. I will make the change in the middle of the day when most bees are flying. I have 200 lbs. of sugar on hand. I will feed until I add the second brood-chamber, which will be when the fruit-trees start to

bloom, or perhaps before. Would it be advisable to raise some young queens and have them all ready to introduce to the hives I leave on the old stands?

Troy, N. Y., April 14.

W. H. ROBERTS.

[Giving a colony an extra brood-chamber filled with empty combs or frames of foundation is correct enough in principle; but there will be no particular advantage in reversing the position of the brood chambers unless you use perforated zinc and put the queen below the zinc with the empty combs or frames of foundation. Without the queen-excluder or perforated zinc, the queen in all probability would stay with her brood-combs whether she was in the bottom story or in the top story. She would gradually, however, work into the other story that had the empty combs or frames of foundation, no matter whether it were below or whether it were on top. A much better plan than reversing the brood-combs, and which would accomplish the object which you are seeking, would be to scatter the brood—that is, after settled warm weather has come on. At the time of giving the extra hive-body on top, remove some of the brood-combs from the lower hive and put them in the upper hive. Fill the spaces in both hives with frames of foundation or combs, placing the empties in alternation with the frames of brood. But be careful not to overdo this. It would be very much better, at the start, to bring up one or two frames of brood in the upper story along with the empty combs and frames of foundation. Place the two frames of brood together. At the beginning of things it is wise not to scatter the brood too much; but when the swarming season begins and the bees feel inclined to swarm and hang out, then we advise alternating a frame of brood with an empty frame of comb or frame of foundation. As a general thing this will entirely check swarming for the time being.

Your scheme of taking away the brood-chamber containing the heaviest frames of brood is correct enough, with this exception: It would be better to use only frames of sealed brood. If you effect this removal at the time when the bees are flying the heaviest, and leave plenty of young bees with the hive removed, there will not be much danger of chilling the brood, providing the weather is warm enough at the time. Taking every thing into consideration we think you will find the Alexander method of making increase, recently given in GLEANINGS, will suit you better. See page 314 of GLEANINGS for May 1.

Yes, you could raise young queens and have them all ready to introduce at the time of making the division; but before you raise any queens you better read the article on "Queen-rearing" in our A B C and X Y Z of Bee Culture, or in our booklet, "Modern Queen-rearing."—ED.]

No Pollen-producing Plants in Bloom, a Result of the Frost

In returning to my apiary from the north last week I found every thing at a standstill; but little brood-rearing was going on, and the bees were weaker in numbers than ever before in my experience at this time of the year. I soon saw, from inspection, that they were entirely destitute of pollen, and not a speck was coming in. The bees were heavy from well-filled combs of honey which was fed to them last fall. I never had such an experience before, as pollen is always abundant here, even when honey is absent. I never had to feed flour before in my experience of more than thirty years. The bees went at the rye flour like hogs to swill. They were more ravenous over it than when robbing. My one hundred colonies took in four quarts each day, for a week, and stored but little of it, and the weather, too, was very cold for this season of the year.

I now see that the pollen flowers are absent, and

the pollen trees and shrubs are killed from the late heavy frosts which visited us in all parts of California. The willows and cottonwoods will, no doubt, bloom later, as only the limbs are dead. Other shrubs seem to be completely killed.

Lonoak, Cal.

C. K. ERCANBRACK.

Equipment for Production of Comb Honey

Dr. C. C. Miller:—After nine years' experience with extracted honey I think I'd like to go back to the production of comb honey. Now, if you were to start over with a new outfit, what super and style of section would you use? How would you arrange the inside of the super? What kind of furniture? Would you have two extracting combs, one on each outside? I had thought I'd like section-holders with top-bars, then I would put the sections into the section-holders and put the foundation in afterward (full sheets). I have done so on a small scale, and in this way no foundation is ever broken loose. Does Fifty Years among the Bees give the whys and wherefores?

Mr. Townsend speaks as though he likes the T supers with two extracting combs, one on each outside. He too figures the cost of production and tries to cut it down.

Battle Creek, Mich., April 27. WM. C. BROWN.

[Dr. Miller, to whom the above questions were addressed, replies:]

I would use the T super, and it would likely be with a ten-frame hive. Besides the T-tins, the only furniture would be plain wooden separators and little sticks to crowd between the tops of the sections to keep sections square and prevent bee-glue. These sticks are about $\frac{1}{4}$ -inch by 3-32. I think I would at least do some experimenting with an extracting-comb at each side of the super. The sections would be $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ beeway, filled with full sheets of foundation, top and bottom starters.

You will find twenty pages or so devoted to the subject in "Fifty Years among the Bees."

Marengo, Ill.

C. C. MILLER.

Bee Paralysis or Poison?

We are experiencing a trouble here with our bees that we have never had before in this section that I know of, which is this: The bees are dying right along. It seems to be the old bees that are affected, and one would think it was caused by spraying were it not for the fact that there has been no spraying at all in this section. The brood is in fine shape, and the young bees seem to come out all right; yet the colonies do not build up; in fact, many of them are going back rapidly, yet practically all colonies are affected, and all yards that I know of are affected about alike, and I know the conditions over quite a bit of territory. We have never had any disease here at all, to my knowledge, before the present trouble.

Some think it paralysis; but I do not think it is. I have A B C and X Y Z of Bee Culture, and have made a study of bees more or less for the last twelve years, and must say that I am puzzled; but I am inclined to think that it is caused by gathering honeydew from the excessive amount that we have had here all the spring on pine-trees. It has been in such quantities that one could rub his hand on the grass under the trees and get them coated with the substance. We have had much cool weather and especially nights, many days being so cool that the bees would hardly get any flight at all; and if I can see any difference I think we have more dead bees after the coolest weather. The ground in front of the hives is covered with dead bees; and in some instances where there is grass it is even killed by the dead bees. The combs are full (in all colonies that are at all strong) of this honeydew, and the queens are laying finely. It is now 9 A. M., and I have stopped writing long enough to run out and examine

the fronts of the hives, and find fewer dead and dying bees than on last Tuesday morning when it had been cooler than now. For the last day or so, say three days, it has been fairly warm, almost hot. Many of the bees are carried out alive, but sick, and hop around on the ground, sometimes living over night in this sick condition. They look swollen and slick, while the majority are dead when carried out.

Rock Mount, Va., May 2.

B. L. FISHER.

[Notwithstanding what you say to the contrary, we should be very strongly inclined to believe that what is killing your bees is paralysis. Your preliminary description rather points in that direction, and the last sentence of the next to the last paragraph seems to leave no doubt of it in our minds. No form of honeydew, nor any honey, in fact, that we have ever known any thing about, will cause the kind of malady you describe. Your bees might possibly have been poisoned; but we hardly think that is probable in view of the last sentence referred to in the next to the last paragraph, especially where you say "they look swollen and slick." This is a very unmistakable symptom of bee-paralysis, and, taken in connection with all the rest you say, makes it very clear to us that there is nothing else the matter with your bees.]

If you will follow the directions given by Mr. O. O. Poppleton, who has had as large an experience with it as any one, as given under "Bee Paralysis," in the A B C and X Y Z of Bee Culture, you will be doing about all that you can do for them, because we do not know of any easy and simple cure. One thing we would suggest, we would isolate all the sick colonies and locate them in a yard by themselves. We would change the queen in all the colonies, and then practice the treatment recommended by Mr. Poppleton.—Ed.]

Why do Swarms Cluster Before Leaving?

On p. 502, Aug. 15, 1912, you give my theory as to the possible reason "why swarms cluster." I wish you would again put it before your readers, asking those who might desire to test it to report results.

We have by the "wing-clipping method" a decided aid in handling primary swarms; but it is the after-swarms that not only can and do make us climb, but that sometimes beat us completely; and it wouldn't hurt a bit if one more slat could be added to the knowledge our older veterans have given us on handling this problem.

One day after the issuing of a swarm from a hive wherein all eggs had been hatched and all brood beyond the possibility of making into queens, I destroyed all the queen-cells and allowed the swarm with a queen to hang as long as the bees would. After remaining clustered for an hour and a quarter they quickly broke; and before I got to the second fence they were ahead of me, though I was doing my best to keep up. At a distance of about 50 rods they had abruptly held up, and I was under them again; but instead of being enmassed as they had been, they were scattered; and while I stood out in front of their line of advance for a time, on getting back to the apiary I found the swarm nicely hived at the stand from which it had come.

Sterling, Ill., May 6.

A. B. ANTHONY.

Bees that Would Not go Out of the Pound Packages

In a shipment of some half-pound lots of bees I received from Alabama there was one cage that had been placed over the brood-frames in a super with one end removed so they could escape to the brood-frames. All had escaped from cages in 24 hours; but in this one they would move back and forth to brood-frames for several days. So, upon examination I had discovered they had started to build comb in the little cage in which they came. I also may add

that the queens came introduced, and that this one had started to lay eggs in cells of this comb. The question is, Where did they get the comb? for they could not get out of the hive in all this time, but had brood-frames with comb and honey in the hive. I have never heard nor known that bees could work over old wax, so should be pleased to have this point made clear.

Downer's Grove, Ill., May 6.

J. MEY.

[Bees can build comb while in confinement, for, in fact, they make their wax out of honey. As they were supposed to be supplied with it in your case they could easily build comb; but it is a very unusual procedure. It is not at all surprising that the bees refused to go down on the brood-combs, because, if there was a little bit of comb in the cage that contained a few eggs, the queen and the bees, you will find, would stay where that piece was. They would gradually, however, work down in the hive, because the capacity of the cage would become too limited in a short time.—ED.]

Cottonseed Meal Eagerly Taken by Bees

On age 272, April 15, Mr. Kos Hurst suggests that Mrs. H. Millard, Feb. 15, page 131, use cottonseed meal as a substitute for pollen instead of albuminized sugar or rye meal. Mr. Hurst says that he has never read where cottonseed meal was fed to bees as a substitute for pollen. Bees will carry in cottonseed meal if they can get it early in the spring before there are any flowers or enough flowers to produce the amount of pollen necessary. I have seen bees working so thick in hoppers that contained dry mash for chickens that the chickens refused to eat except early in the morning and late in the afternoon when the bees were not flying. The mash contained a good deal of cottonseed meal, and the bees worked until they had gotten nearly all of the meal out of the mash.

The best way to feed the bees the cottonseed meal is to mix it with wheat bran, half and half. Some of the bees are sure to be drowned if the meal is fed to them just as it is. After the meal and bran are mixed, pour it into a flat box and mound it up. The mash should be stirred and mounded up every day, as the bees work it down level when they get out the meal.

If the weather is favorable, the bees will soon carry in enough to fill the brood-chamber. A little honey smeared around the sides of the vessel that contains the mash will soon attract the bees. Brood-rearing seems to be carried on as easily with cottonseed meal as with pollen gathered from flowers. I am sure that cottonseed meal can be used to great advantage in localities where pollen is scarce in the early spring.

Here at Beeville cottonseed meal costs \$1.50 per 100-pound sacks. A hundred pounds of meal added to bran as needed should supply at least 200 colonies of bees with pollen for at least one month.

Beeville, Texas, May 12.

C. E. ENGLE.

What to do with Sections Containing Pollen when Grading

How many cells of pollen can pass in fancy sections? How many in No. 1? I use excluders, and yet I have lots of sections with pollen. I use the Danzenbaker system of comb-honey production. Heretofore I have sold such honey to farmers at 8 cents for fancy, but it does not pay.

New Boston, Mo.

F. H. THIELE.

[We submitted this to Mr. F. Rauchfuss, manager of the Colorado Honey-producers' Association, and he replies:]

The question of pollen in sections has never been taken into consideration when framing our rules, because in all of the experience that we have had during the last fifteen years there have been probably

one dozen sections found with a few cells of pollen in. For this reason it is a negligible quantity, and not to be considered; but if it were in a location where it happens often, as it seems to in Mr. Thiele's location, we would consider such as not fit to go into anything but the No. 2 grade, no matter how well they may be finished and filled.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, Colo., May 12.

F. RAUCHFUSS.

Sheep Not Necessary to Make White Clover Yield

I agree with Dr. C. C. Miller that it is not necessary for sheep to pasture in white clover in order that it may be more productive. In fact, cattle are better, as they do not eat the crown out of the plant as sheep will do. Poor farming has hurt the land in this locality so far as producing white clover is concerned. The short rotation, advocated by the experiment station at Wooster, for bringing back fertility to our soil, is detrimental to white clover unless farmers sow it; and that is what they should have been doing for years. A chemical analysis of white clover shows that it is richer in protein than almost any legume which is grown for forage.

Bloomington, Ohio.

W. B. RALSTON.

A Correction

In describing my arrangement to get bees out of the extracting-supers, p. 230, April 1, you used a cut which I think does not make it plain. I make the box 18 or 20 inches high. This box could be tight on the sides and ends, except that the side furthest from the operator should have an opening the full length of the box, and about three inches wide in order to give air or ventilation to the bees after they slide down the chute below.

Lakeville, Ind.

C. A. BUNCH.

Removing the Queen

Can as much comb honey be secured from colonies where the queen is removed as by the shaken-swarm plan?

Honeoye Falls, N. Y., Feb. 24. GILBERT BROS.

[Caging the queen to prevent swarming, when running for the production of comb honey, seems to take the life out of a colony. The bees attempt to rear queen-cells; and if a single cell is missed, a swarm will come out very soon after the virgin hatches. The methods of shaking swarms, we should say, would be much more satisfactory than dequeening; and it would be our opinion that more honey could be secured.—ED.]

The Number of Bees to the Pound

Will you inform me of the number of bees in a quart or a pound? If a pound, what is the space they occupy?

Canton, Mass., April 21.

E. C. BRITTON.

[There are about 3200 bees in a quart and about 4500 bees on the average in a pound. This number, however, will vary according as to whether the bees are filled with nectar or not. A bee can carry half its own weight in honey and possibly a little more at times. If, therefore, the bees are filled with honey a proper reduction should be made from the figures already given.—ED.]

Death of Melvin Isbell

I should like to have a brief notice in GLEANINGS of the death of my husband, Melvin Isbell, which occurred May 3. He was a veteran beekeeper, keeping bees since a man of 20. He also took GLEANINGS, since its first beginning, and had nearly every one in good condition. He was 63. I think he kept the most bees of any one in Chenango County.

Norwich, N. Y.

MRS. MELVIN ISBELL.

Our Homes

A. I. ROOT

A soft answer turneth away wrath; but grievous words stir up anger.—PROV. 15:1.

But I say unto you, that ye resist not evil; but whosoever shall smite thee on the right cheek, turn to him the other also.—MATT. 5:39.

Think not that I am come to send peace on earth: I came not to send peace, but a sword.—MATT. 10:34.

It is now springtime, and everybody is making garden more or less. I do not know but I might say likewise that *almost* everybody is keeping chickens "more or less." Well, the chickens are all right and the gardening is all right. Both are commendable. But they do not work well together. If the mother hen is penned up and the little chicks are allowed to run through the garden, they will, at least for a time, do good and not harm; but if you do not look out, the first you know, even small chicks will get into the seed-beds and not only dig them up but make things look sadly untidy. I have sometimes thought that plants become discouraged and give up, just as human beings do. After a chicken has snipped off the foliage and scratched the dirt off from some of the tiny rootlets, the plant will of a sudden lose its vigor and energy. Well, what I have in mind this morning, while we are getting a gentle May shower, is the matter of having one neighbor have a choice garden and the adjoining neighbor some chickens, and trouble comes. Not all of the chicken folks and garden folks are professing Christians; and some of them that *are* seem to forget their religion when the chickens get across the boundary line and dig up the plants. I believe it is getting to be more and more the fashion to dispense with fences; and I always rejoice to see this. We of the United States, especially the Christian people, have no money to waste on needless fences any more than the great powers of the earth have millions to waste on needless "men-of-war." May God hasten the day when men shall beat their swords into plowshares and their spears into pruning-hooks. Of course the chicken man (or chicken woman) must have fences. But the neat tidy fences made of poultry-netting are not at all offensive nor out of harmony with beautiful surroundings. In towns where neighbors are close by on all sides, I would recommend fowls that do not fly over fences, or having coarse cheap netting overhead also. Let us remember what my old friend Aunt Margaret said when her chickens had a habit of getting into our front yard. She said in substance, if not in exact words, "If chickens make my neighbors to offend, I will

keep no chickens while the world standeth." And she offered then and there to sell me all the chickens if I wanted them. As I did not want them, she disposed of them soon after. In looking back at the transaction I feel sorry I did not show *my* Christianity by offering her a poultry-netting fence, and telling her to *keep* her chickens, for she was a poor woman and they were conducive to her health in getting outdoors as well as earning a scanty livelihood. Oh dear me! I am afraid I have many times in the past forgotten *my* religion and forgotten that cloak of humility that we who are followers of the Lamb should wear day and night. I keep thinking of my talk about the boys and the automobile in last issue. I once thanked a good Methodist brother for his excellent sermon, and told him it had done me a lot of good already. He surprised me by replying something like this: "Mr. Root, that sermon has done *me* good too; and I firmly believe that it always does every one good who preaches in his own way the gospel of Christ Jesus."

There is a little more I did not tell about that automobile transaction. After the boys had blocked my way in going to the prayer-meeting, on my return home I went to the postoffice to get my evening mail. Well, those boys I have spoken of have a fashion of hanging around the postoffice. I wonder if that is true of your postoffice, say in the evening, between eight and nine o'clock. While I was in getting the mail out of the drawer I heard an automobile making an awful racket as if it were going to tear itself to pieces. I rushed out; and both levers of my machine were turned up to the highest speed, and the engine was going like a young tornado. As quickly as possible I threw the levers back. Two men stood close by, talking as indifferently as if that were the way automobiles always do. I asked if they could tell me who started my machine in that way. One of them said a boy ran up and pulled the levers, and then ran back in the darkness. Then the men went on talking. I had been sorely vexed an hour before, and now my patience and Christian spirit were most severely tried. I was not only vexed with the boys who took such a liberty, but with the two men who seemed so indifferent. In fact, I was a good deal stirred up, and I do not know but I almost felt "ugly" toward everybody. I thought the two men might have stopped the boy who pushed the levers back when they saw how the engine was "racing."

Now, it looks from the above as if I were complaining about Bradentown or Bradentown men and boys, especially the two I have mentioned; but I am not. The fault was all my own. I had stupidly, if not deliberately, brought all that kind of trouble on myself. I had forgotten my Bible, my religion, and the beautiful texts at the head of this talk. Now, friends, before getting up and remonstrating, listen to me a little. If those boys had been in the habit of meddling with everybody's property, and annoying other people as they annoyed me, it would have been a different matter indeed. Public safety and well-being would have demanded, without question, that they should be taken in hand by the authorities of the town. There is a vast difference between a quarrel—that is, between two persons—and one between criminals and righteous laws. Let me illustrate. At that prayer-meeting I have mentioned, neighbor Rood spoke of a couple of farmers who had a quarrel, went to law, and kept it up, year after year, over a line fence. They wasted several times what the strip of land in contest was worth. Finally one of them sold out. A Christian man took his place. As soon as the neighbors told him about the jangle that had made hard feelings and stirred up the neighborhood for years past, he went over to see his new neighbor. After the quarrelsome man had stated the case the new neighbor said, "Look here, neighbor A. I am a man of peace. Friendly relations with all my neighbors, especially those whose lots adjoin my own, are worth more to me than the little strip of land. I am willing you should put the fence entirely over on my side *ten feet* if that will be satisfactory."

What do you suppose happened? Why, that same person who had been for years so tenacious for *every inch* of ground justly his due—the man who had *lain awake nights* in thinking it over—replied something as follows: "Why, my good friend, if that is the sort of man *you* are, I do not propose to be outdone in liberality, or, as you call it, the Christian spirit. Put it ten feet over on *my* line, and I will not say a word."

I do not need to add that a pleasant adjustment of that long-time quarrel and lawsuit was soon brought about. You see this thing is contagious; and, thank the Lord, a good spirit is contagious as well as a bad one.

Here in our town of Medina a man bought a house, and in moving it on to his lot the limbs of some shade-trees were in the way. But the owner of the trees forbade him mutilating so much as a single twig. The

house stood still in the middle of the street, and both parties consulted attorneys. The one who owned the trees neglected his work, and stood out in the street to prevent damage to his property. His wife and children joined in, and the neighbors took sides, etc. As one of the parties was in my employ I felt sure I could induce him to be reasonable. What do you think? I could not budge him an inch. He said if it took every copper he was worth he was going to have his rights. He had always been a quiet, peaceable man before. I never heard of his having trouble with anybody. I can not remember now just how it was settled. If I am correct, I think the pastors of two churches helped bring about a pleasant adjustment. And, by the way, it occurs to me right here that, when you get into a place like that, your pastor will be better (and *cheaper*) counsel than a lawyer unless, indeed, you engage a Christian lawyer; and may the Lord be praised that in these latter days there are getting to be quite a number of such lawyers. I hope they are getting *pay* for giving Christian counsel as well as the other kind.

Now, friends, what about our last text? How could the dear Savior who gave us the beatitudes counsel the use of the sword? Why, I struck upon the point exactly when I asked neighbor Rood if the boys were meddling with machines belonging to others besides myself. If the trouble that comes up is between you and your neighbor, never mind the loss of a few cents or a little strip of land. Do almost any thing for peace, and head off ugly feelings. But if somebody is making *counterfeit money*, transgressing the law, and injuring the community at large, by all *means* have him arrested. If he is conducting a saloon, and enticing the boys (and oftentimes the girls), his work is even worse than that of the counterfeiter, for he is not only robbing humanity but damaging both soul and body. Enforce the law to its utmost limit. Let there be no compromise until he gives up the business. Sometimes Satan tempts us to think that letting a man go on with his meanness is encouraging him to keep on doing so; but the petty quarrels and misunderstandings seldom come under this head. There are many people (perhaps I am one of them—yes, I am sure I am, for I have illustrated it) who are liberal and kind, but praiseworthy in perhaps every respect, but who, when they once get stirred up, get into Satan's toils and show the worst kind of disposition. They can not bear "having the fur rubbed up the wrong way," as it is sometimes expressed. The Bible is ringing with injunctions to beware of the evil one

who goes about seeking to stir up mischief and strife; and yet we forget—yes, even the best of us at times—and let the wrong spirit gain a footing. Instead of answering back when sorely tempted, let us remember who it was that said, "Pray for them that despitefully use you, and unto him that smiteth thee on one cheek, turn to him the other also." We are not only to keep quiet and steady under the fire of untrue and unjust words, but we are to be cool and steady, even if it should come to blows; for the same dear Savior says, "Your reward shall be great, and ye shall be called the children

of the Highest." Again, will it *answer* to put these precepts into practice in *business*? Let us remember that beautiful beatitude that says, "Blessed are the meek, for they shall inherit the earth." After the meek have inherited the earth, what is there going to be left for the greedy, the unscrupulous, and the quarrelsome? And, finally, if you think a Christian spirit will be a losing business in the end, read the promise away back in the Old Testament: "Five of you shall chase a hundred, and a hundred of you shall put ten thousand to flight."

Health Notes

THE AMERICAN HOOKWORM, ETC.

A good friend of GLEANINGS calls my attention to the fact that, since I have been spending so much of my time in Florida, it might be well to say something about the hookworm in the South. The *Rural New-Yorker* for Dec. 14, 1912, gives a very full description of this pest of humanity, and I wish it were possible to give it entire in GLEANINGS. When I first commenced spending my winters in Florida, seven or eight year ago, Mrs. Root and I were both shocked to find that out in the rural districts at some of the homes there were no outbuildings of any sort. At one place, where there was quite a family of young people, including young ladies, I was told the "men folks" were expected to go out among the bushes on the *north* side of the road, while the south side was understood to belong exclusively to the women folks. I am glad to tell you, however, that Florida has been coming forward by leaps and bounds in sanitary matters and sanitary precautions. The hotels and dwellings—at least to a great extent—have as convenient and up-to-date outbuildings or closets as we have here in the North. Well, now, to get back to our subject.

The hookworm, if permitted to live, will annoy and oftentimes even destroy innocent boys and girls because of this very backwoods (and I might almost say heathen) fashion of having no outbuildings. Just think of a country schoolhouse with boys and girls going everywhere without any such sanitary conveniences as I have been speaking of! Permit me to say right here, if the disease or parasite exists in the part of Florida where we are located, I have not heard of it. Manatee Co. has never had a *saloon*; and, God helping us, it never will have. But what have saloons to do with the hookworm? Just this: Where there is pov-

erty, suffering, and want, the women and children will have to go without the comforts of life. The eggs of these terrible "animals" are laid inside the body, and pass out with the excrement. If they get into the damp warm soil they will get on to the bare feet of the archin and get through the skin just as the redbugs and sticktight fleas do. Once inside, they make their way quickly to the intestines, where they are veritable bloodsuckers. Where the children play in the dirt, these eggs or minute worms get into the mouth through the food or drink. The children are stunted in growth and dwarfed in intellect from a lack of blood—blood-sucked by a hookworm in the raw intestines. Thanks to science and medicine, however, they are easily banished. Thymol in the hands of a competent physician puts an end to them; and a dose of Epsom salts cleanses the patient from the dead worms and eggs. Now, am I not right in saying that, when we banish the saloons, we shall do away with the hookworm largely? and when all the public places, and even every little home, is taught up-to-date sanitation, the hookworm will disappear.

Just one thing more: The *Rural New-Yorker* tells us that the hookworm is a near relative to the gape-worm in chickens, the colic-worm of horses, and the kidney-worm of hogs, and the dangerous trichina, which, several years ago, was so common in pork, especially ham.

STARVING AMERICA.

The above is the title of a brand-new book put out during this year by A. W. McCann, who has been in close touch with Prof. H. W. Wiley in regard to his crusade against impure food and food preserved by means of injurious chemicals. I presume our good friend T. B. Terry will smile when he sees the book I am going to send him;

for although the author starts out from an entirely different direction he ends up very close to where Terry has been working and pleading. He says in the preface that, while many books and much thought have been given in regard to the *vegetable* and *animal* kingdoms for food, but little has been said or touched on in regard to the need of our physical bodies from the *mineral* kingdom. The book from beginning to end (it contains 270 pages) is a vigorous protest against white bread, white flour, rice with the most valuable element about it left out, and the rejection in other ways of the very things that God intended we should use for food. Aside from his strong indorsement of whole wheat (every bit of the wheat) he says we need also to eat the skin of our baked potatoes; and in order to get the minerals that our bodies are often starving for, we should try to have with every meal a large proportion of "uncooked" food. Of course he urges a diet largely of fruit. While he does not enjoin or recommend a vegetarian diet exclusively, he says a little meat for the growing child once a week will be sufficient, and perhaps twice a week for adults. Let me make a couple of extracts:

Every time we boil a potato and throw away the water in which it is boiled we throw away potassium.

The despised Italian fruit-vender at the street corner is a noble American institution. By his display of greens and fruits he constantly tempts mineral-starved bodies to eat these raw and life-giving carriers of mineral salts. No one knows what a blessing the Italian has brought into the hurried, unthinking, ignorant land through his fruit-stand.

By the way, I have often assured Mrs. Root that, when we soak the potatoes over night, and throw away the water, we are wasting the best part of them. I have all my life preferred potatoes baked whole; and the most delicious part of a baked potato, when properly baked, is, for me, the skin. In the same way, I want my sweet potatoes baked without peeling, and also my *dasheens*. Before another year has passed I think a large lot of us will be made happy with dasheens. Where I have good nice apples, I have for years been eating them core and all. The seeds seem to me to supply something that nature calls for.

The book enumerates the minerals that make up the composition of the whole human body. But the author assures us we can not get these at the *drugstores*. They must come from the use of the fruits and vegetables that God prepared for us and intended us to use. The book is going to be a heavy blow at a large class of our manufacturers of food products. They not only throw away the valuable part of these

products, but substitute benzoate of soda and a lot of other injurious drugs as preservatives. The manufacturers of these prepared foods, and especially the injurious prepared foods, are making so much money in the business that they were able to throw out Dr. Wiley, even when he was proving himself to be a world-wide benefactor to the whole human race.

The book is now published by The Geo. H. Doran Co., 38 West 32d St., New York. At the present writing we are not able to give the price; but I wish that every man, woman, and child could read it.

Below is what my good friend W. P. Root had prepared for a review before I had got hold of it.

AN EPOCH-MAKING BOOK.

One of the most important contributions to the subject of health is a book called "Starving America," written by Alfred W. McCann, Member Vigilance Committee of the Associated Advertising Clubs of America. It tells why fifteen million children are physically defective; why 250,000 children die annually in this country; why we pay one-fifth as much for drugs as for foods; why 130,000 surgeons and doctors work day and night, etc. The book has 29 chapters, among which may be mentioned "what minerals do;" "white-bread starvation;" "candy, ice-cream, and other foods;" "procession of little white caskets;" "meat-eating insufficient."

It is out of the question to give here even a summary of the writer's startling exposures of the deleterious articles sold to children; and the wonder is that more of them do not die instead of stopping at 250,000 a year. The author makes a fearful arraignment of many common articles of food, some of which are not tabooed by even the pure-food law of 1906. He says that Easter eggs are made of stearic acid, carpenter's glue, glucose, coal-tar dye, and soapstone.

Licorice pellets are made of lampblack, carpenter's glue, and glucose.

Baked beans are coated with shellac.

Easter rabbits and marshmallows are made of carpenter's glue, glucose, coal-tar dyes, and ethereal flavors.

Easter chicks are made of carpenter's glue, glucose, coal-tar dyes, and ethereal flavorings.

Candy marbles are made of coal-tar dyes, glucose, ethereal flavoring, and soapstone.

As an adulterant, glucose seems to be in universal use; and, in fact, one would infer that groceries and drugs are all sold from the same shelf.

In regard to food, the book is about

equally divided between "thou shalt not eat thereof" and "thou mayest freely eat;" and in regard to the correctness of the writer's conclusions there can be no doubt.

Beekeepers will be pleased to note in this book the high estimate the author seems to attach to the use of honey. On page 181 he says:

"Honey, sap-maple syrup, and old-fashioned molasses, with unrefined cane sugar, contain the tissue salts of the cane, tree, and flower, the iron and calcium that nature put there. Such forms of sweets are natural and good. Candy prepared from them is good candy for the child."

On page 184 he recommends for breakfast, among other things, "whole-wheat bread, sweet butter, and honey." On page 186 he prescribes the same for dinner. On page 221 honey is given as a prominent ingredient in making ice-cream.

If the recommendations of Mr. McCann were to be adopted by all the people of this nation it would result in a complete revolution in our mode of life, and a still greater one in our mode of gastronomic suicide.

See also the following from the publishers:

The interest aroused by Mr. McCann's exposure of adulterated foods and their disastrous effect on the civilized races promises to find expression in reform legislation in the very near future. Mr. McCann has been personally interviewed by Governor Sulzer, of New York State. Miss Kate Barnard, of the Charity Commission of the State Board of Oklahoma, has already prepared a scheme of child nutrition which is shortly to become a part of the State scheme of education. There is every sign that the notice attracted by this book is only now at its beginning. Those who are nearest in touch with Mr. McCann and his propaganda prophesy that his book will work a revolution in child culture, and that his principles will have to be incorporated in future courses of medical training.

New York, Feb. 17. GEORGE H. DORAN CO.

Later.—Here is what Terry writes after receiving the book:

Dear Mr. Root:—The book, *Starving America*, arrived safely, and I thank you very much for it. It is really quite wonderful how nearly his teachings agree with what I have been writing for past ten years. He gives the inside of adulterations, food preservatives, etc., to an extent that makes one shudder—and all done to make more money for a few by robbing the many of money, health, and even life. Thank God that there are a few things which I can eat safely, such as baked potatoes, home-ground wheat, apples, oranges, lemons, bananas, berries, and nuts. We have been buying seedless raisins, and I believe they are all right. But last time I was in the city I saw "bleached" ones offered for sale, and people buying them because they looked so nice and white. But no sulphur-treated goods for me.

Many of the statements in the book are startling, such as that all New Orleans molasses contains sulphurous acid. What a great work there is yet for such as you and I, who really want to be helpful to the people!

Hudson, O., May 8.

Most kindly yours,
T. B. TERRY.

POISONING THE BABIES, NOT ONLY AFTER THEY ARE BORN, BUT BEFORE THEY ARE BORN.

We may rejoice that the whole wide world is waking up in regard to the matter of looking after the health and comfort of our children, especially the babies; and one can well contemplate with amazement and astonishment the indifference with which our nation and other nations treat the matter of permitting cigarettes to be manufactured and sold. Read the following from a good friend away off in New Zealand:

Dear Friend A. I. Root:—The attached clipping from the *Dunedin Evening Star* will be of especial interest to you when I inform you that Sir Robert Stout is New Zealand's Lord Chief Justice—a strong advocate of "no license," and a Prohibitionist—one who, before he occupied his present position, filled many important political positions.

Mosgiesl, Otago, N. Z. WM. CHAS. BROWN.

"What number of cigarettes do you think were sold in New Zealand last year?" asked Sir Robert Stout at the Brotherhood recently (says the *Taranaki Daily News*). Answering his own question, he gave the quantity at 794 millions. Estimating the population of the Dominion at a million, and not including all the women and children and the men who do not smoke, one could, he added, get an idea of the prevalence of the habit among smokers. "Look," he remarked, "at the enormous waste, independent of health, and yet it is totally unnecessary. It is affecting the power of our young people. Why, in America, in many of the best companies, if they find their men smoking cigarettes they tell them they are not required. They do not look upon it on sentimental grounds, but because of efficiency. Cigarette-smoking tends to make our boys inefficient, and it is the efficient race that is to survive." Continuing, Sir Robert said that, happily, the cigarette habit was not yet prevalent among womenfolk of the Dominion. Instancing the bad effect it would have on them, he pointed out that in certain parts of Belgium and France the death rate of infants was enormous. It was due to the fact that their mothers smoke cigarettes while nursing their babies. The doctors had proved the cause of the mortality by finding the narcotic in the blood of those who had died. Concluding, the speaker pointed a warning finger to the fact that, if the habit were not checked, the race would become inefficient. New Zealand could talk about its climate and what not; but it would be unable to fight the battle of nations if the habit were allowed to hold sway.

"THE HIGH COST OF LIVING," ETC.

I have read T. B. Terry's book on how to keep well and live long. It is certainly very interesting, very practical, and, if heeded by all, would solve the question of high-priced living. If we all lived as Terry claims he does, every thing in the eating line would be a drug on the market, with the possible exception of fruit. Terry does not eat in a whole day as much as almost any boy ten years old will eat at one meal. Most kids want three meals a day too.

We are a nation of 80 million people, and if we should cut out 160 million meals of one pound each, it would mean the bankruptcy of our nation.

The high cost of living is all a bugbear any way. It is nearly one-third less now than it was in 1870. We have no ground for "kicking" if we spend our money foolishly. If a man can not make a good

living, and lay by a nice little snug sum for old age or a rainy day at this very time he lacks all the true principles of frugality.

It is only the penny wise and pound foolish in our herd that suffer at this time. Their habits seem to be quite popular. They "kick" because milk is selling for eight cents per quart, which is below cost, but never "kick" at the price of poor whisky at ten cents per drink for a dozen or more friends at one time. I never could see why our saloons have more generous friends than our good milkmen or grocers who sell close and live frugally for a life time, and then do not die rich. It's the saloonkeepers who die rich. Most inconsistent is man, any way; so, what are we going to do about it?

Brewster, Wash., Dec. 14. V. W. CLOUGH.

The following from T. B. Terry, in the *Practical Farmer*, I heartily endorse, especially that part about the average city "specialist." Our readers may recall that I wasted quite a few dollars on "treatments."

HOW WOMEN CAN SAVE MANY DOLLARS.

Women pay out much money for doctors and drugs. We want to help our readers to save this to buy more of the comforts of life with. A dollar saved is as good as one earned. One of our readers, a woman of 48, has had several spells of ill health. She went to a "well-known specialist" in a city for advice. He told her that she was suffering from auto-intoxication. In plain English this means that she is self-poisoned; that there is an excessive

amount of poisons in her system, coming from wrong habits of life. He gave this sister medicine, and wanted her to remain with him for four months at considerable expense for "treatment." She at once wrote to us to get our advice about this. He told her not to eat any "fruits, sweet potatoes, corn, and lots of other good things that I am fond of. He said they brought on my troubles. My tongue is coated, bowels sluggish, and bad taste in mouth in the morning. Do you advise me to stop taking this man's medicine?" Well, what the doctor said about your condition is probably correct. But his plan of "treatment" would transfer considerable money from your pocket to his, and do you no good that you can not get at home. Yes, I advise you to throw the medicine out where even the chickens can not get it. By simply changing your wrong habits of life, nature will cure you at no expense, practically, and you can stay cured. Your tongue will then be clean, breath sweet, and you can get up in the morning feeling splendidly. The first thing to do is to eat, drink, and exercise so as to cause bowels to move loosely two or three times a day. It will take some time, but keep right at it until you do. Pardon me; but the straight truth is that the bad taste in mouth and coated tongue come largely from filth in the blood reabsorbed from constipated bowels. Nature sends this filth into one's mouth, where it can be tasted to give plain notice that the main sewer of the body is clogged and needs immediate attention. Having this matter right, be careful to furnish your body with proper air, water, sleep, and food. Then, in a word, you will probably gain by eating less, especially of protein-furnishing foods, and chewing more.

High-pressure Gardening

SEED POTATOES; HOW TO GET THEM, READY TO PLANT, BY OCT. 1, DOWN IN FLORIDA.

I have already mentioned the difficulty of finding seed potatoes ready to plant when we first reach our Florida home, say along the last of October. So far there does not seem to be any of the seedsmen or anybody else down in Florida who is prepared to furnish such potatoes, notwithstanding the best time to grow potatoes in Florida—that is, in order to have new ones about the first of the year—is in October and November. A good friend of mine whose former home was in this (Medina) county tells me how he manages it. If I am correct, he usually makes a pretty good thing of it in growing new potatoes when nobody else has them. He sends us the following in regard to his manner of doing it.

Mr. Root:—I see in GLEANINGS for April 15 that you have had trouble in raising early potatoes in Florida. For several years I have had potatoes raised for me in Medina, and shipped the first of September, so I would get them about Sept. 15, take them out under a tree or other shady place, spread them out not over two deep, cover them with grass or old sacks, throw a few bucketfuls of water on them, look at them every day or two to see that they do not get dry. They will sprout. I plant them about Oct. 1, and have new potatoes for Christmas. Potatoes should be planted in Ohio so as to have them get ripe in August; and when dug they should be spread out in a cool place to dry, then put in barrels and shipped.

West Palm Beach, Fla., April 28. J. N. PARKER.

SWEET-CLOVER GROWING IN FLORIDA NOT A DIFFICULT MATTER AFTER ALL.

Mr. A. I. Root:—I am now a subscriber to GLEANINGS, and have been, off and on, for a number of years. I am interested in all its contents, especially your department; and, contrary to the usual custom, as soon as received I begin its reading at the back to see what A. I. Root has to say. I am always interested in the different topics you discuss—particularly sweet clover. This has interested me from the beginning. In the fall of 1910 I came to Florida, and located at Taft, Orange Co., seven miles south of Orlando. The same fall I sent to your firm for a pound of white-sweet-clover seed and the "Clover Book." Both seed and book came to hand promptly. The seed was not opened until last December (one year later), when my good wife planted two 30-foot rows of it. The seed was drilled very much thicker than necessary, using for fertilizer Canada hard-wood ashes and "cowchips." It came up very thick, and made a growth of 2½ to 3 feet in height. Had less seed been used it would have grown taller. It matured the seed; and where it grew the ground is now thickly set in young clover. Last week (December 26) we drilled us a 100-foot row of the Root seed, and it is already coming up nicely. We have had this seed on hand 2½ years. It speaks well for its vitality.

It may be of interest to you to state that we live in the flattest kind of "flat woods"—raw scrub palmetto, and on this kind of land this clover grew.

I sent quite a bundle of the clover to Mr. M. K. Van Duzor, who was then editor of the *Messenger* at Orlando, Fla.; also a little write-up on sweet clover.

I am prompted to trespass upon your time with this statement, owing to your recent reference to sweet clover in a late issue of GLEANINGS, saying it had failed to grow at your Bradentown home; and also a statement recently by another writer,

that sweet clover would not mature seed the first year of growth.

With the compliments of the season to yourself and *sweet clover*, may you both "live long and prosper."

Taft, Fla., Dec. 13.

I. A. WORLEY.

My friend, we are exceedingly obliged to you; but I can hardly understand how it is that on soil so near by, and so similar, we have had so many failures. When I first came here I made a little piece of ground very rich, and planted the alfalfa and sweet clover side by side. The alfalfa came up and grew quite rank; but the sweet clover, although it did come up grew only a few inches high and never amounted to any thing. Since that, I and my neighbors around here have tried sweet clover year after year, and we have not been able to get a stand even after the seed germinates. A neighbor of mine tried liming the soil very heavily, but with no better results.

The writer of the above letter enclosed the following newspaper clipping in regard to sweet clover in Kansas:

The discovery has lately been made that a plant which grows in and around Kansas City with the rankness of a weed can be turned into vast wealth. The plant is sweet clover, which, heretofore, has been classified with scores of volunteer plants as fit for no good purpose. On vacant lots, in parkings, in back yards, this plant grows luxuriously in Kansas City, and perhaps is the most familiar of volunteer vegetation. Lately stockmen have discovered that it is "practically as good as alfalfa" as a food for stock; that it is drouth proof, and resists extreme cold; and ranchmen and farmers in western Kansas are beginning to plant it and reap great profits from it. They are paying \$10 a bushel for the seed in western Kansas now.

Recently E. G. Finnup, of Garden City, Kan., thrashed nine hundred bushels of the seed, and is getting from \$8 to \$10 a blusheel for it.

Mr. Finnup recently said that sweet clover is just as good as alfalfa for live stock; that it makes an earlier pasture and a later pasture than alfalfa, and does not bloat the cattle. It stands the dry weather and the colder weather better than alfalfa; and where there is ground that is worn out it is the best and cheapest known fertilizer to renew the soil. The best results, Mr. Finnup said, came from fall sowing.

The Kansas State Agricultural College grew four or five acres of sweet clover this year on the poorest land on the college farm, and it yielded three tons to the acre. This was as large a yield as that made by alfalfa grown on better soil. The agricultural college endorses the statement that sweet clover is more indigenous to Kansas soil than alfalfa, and that it is one of the best of fertilizers. The college is encouraging its growth in western Kansas.

It is said that the principal objection to sweet clover as a food for stock is that it has a bitter taste; but when cattle cultivate a taste for it they begin to relish it. In planting, the preparation of the ground is similar to that for alfalfa. About forty pounds to the acre is the amount usually sown.

The plant is an annual, or, in part, a biennial—it may start one year and seed the second, when it dies. In waste places it seeds itself, and the plant is renewed from year to year.

Many agricultural journals are discussing the newly discovered sweet clover, and take the position

that a new contribution has been made to agriculture.

Some of these journals say that experiments have shown that there are objections to sweet clover as a hog pasture. The roots of the plant appear to be especially palatable to hogs, and their tendency is to "root up" the sweet clover. Ringing helps considerably in obviating this trouble.

Many of the experts are encouraged to believe that very soon this plant, which heretofore has been scorned as a weed, may develop into a source of great farm wealth in Kansas and States where forage crops are of big value.—*Kansas City Star*.

THAT LUTHER BURBANK (?) "SOCIETY."

We clip the following from the *Rural New-Yorker*:

The Luther Burbank Society is still working on that devoted band of "100 life members." Nearly every day we hear from people who have been solicited. The thing that nearly lands these friends is the thought that they are to be associated through life with such people as Helen Gould and others of the rich and great. There is a list of notables who have already enlisted for life under the Burbank banner. One of our people saw the name of John Wanamaker in this list, so he wrote for further information. This is what he received in reply:

I regret to say that I do not know any thing about the Luther Burbank Society in question, except what is printed, and that I was elected an Honorary Life Member, which did not require any dues to be paid, and therefore I have not paid any. Very truly,
JOHN WANAMAKER.

It is a good chance that all the other life members except Mr. Luther Burbank would tell much the same story. Our only comment is that it seems a shame that public men will permit their reputations to be cut up and used as "sucker bait." These invitations are going to a class of people who really think they can help their business materially by associating as "life members" with these great men!

IS IT TRUE THAT A "CLUCKING HEN" IS JUST RIGHT FOR THE TABLE?

The San Francisco *Examiner* has an article to this effect. The writer says a clucking hen is always fat—in fact, that she weighs a pound more than at any other time, because she puts on flesh to prepare for the long siege of sitting. It has also been suggested that she will not lay any more eggs for perhaps two or three weeks. Now, I somewhat question whether the above is true; and I wish our poultry friends would give their opinion in regard to the matter. My experience seems to have been that a clucking hen is generally a pretty good layer. If she is broken up promptly she will soon be laying again, and so on. I have two Rhode Island Reds in my Florida home that commenced to lay when the chicks were about three weeks old. One of them never *sat* at all. I gave her a lot of chicks from the incubator the very morning she began to cluck. She took excellent care of her chicks, and before they were quite three weeks old she would excuse (?) herself and go off and lay in a stolen nest. She did this for quite a spell, still taking excel-

lent care of the chicks. This article I have mentioned says, "There is really no secret why a clucking hen is better food than any other sort;" but I must confess that I do not like the idea of killing a laying hen un-

less you have proved by trap nest or in some other way that she is a poor layer. If she wants to sit after she has laid, say, fifteen or twenty eggs, we consider it is nothing particularly against her.

Temperance

WHO SHOULD BE LYNCHED—THE BOY OR THE SALOON-KEEPER?

Of course, I do not believe in *lynching* anybody; but if the craze for lynching is to keep on in spite of us, suppose the lynchers should take a notion into their crazy heads to lynch the saloon-keeper. I suppose one reason why they do not do it is because it is the saloon-keepers who furnish the whisky that fires the crowd with a crazy zeal to make them *believe* they are defending *virtue*. Read the following, which is clipped from *Collier's Weekly*; and in submitting it I want to say, may the Lord be praised that *Colliers* have turned their heavy artillery saloonward.

THE MAN WHO MADE MONEY.

In Salem, Ill., on March 15, the most horrible crime known to humanity was committed by an eighteen-year-old boy, Sullens, against the little fourteen-year-old daughter of a well-known judge. In court Sullens was asked: "Where did you go after you left the girl?" He testified:

"I went over to the coal-mine. I wanted to get sobered up. I had drank about a pint of whisky and eight bottles of beer the night before. I got the liquor at Lakin's. I was in a car when the deputy sheriff found me."

He was saved from lynching only by the appeal of a minister who diverted the attention of the crowd to the blind tigers and bootleggers which flourish in the town.

Mr. A. Thrasher, superintendent of schools, joined the ministers and other citizens in the protests against what they described as the real cause of the crime. "That Sullens boy was in school five years ago, and was as fine a boy as there was in town," said Mr. Thrasher. "Booze is responsible for his present state."

Who are the brewers and whisky-makers who stimulated this crime and made money out of it by supplying liquor to a dealer in a prohibition town? They are probably highly respectable citizens of Peoria, where no social odium attends the making of money by the stimulation of vice.

SELLING LIQUOR IN DRY TERRITORY.

May the Lord be praised that there is "somethin' doin'." I have a colored man in my employ in Florida who has a fashion of saying, "Nothin' doin'" when our plans do not materialize—say, when the wind does not blow and the chickens happen to be out of water, etc. Well, the brewers and liquor-dealers have been enabled by their wives and millions to thwart our plans for prohibition, so that again and again comes the sad report, "nothin' doin'" in the temperance crusade. Let me now give you a little ex-

tract from the *Wheeling Advance* of May 2:

Wheeling liquor firms have been exceedingly active in endeavoring to annul the Rose county-option law in Ohio counties. Some have tried it and escaped the law; but at least one firm must send its check to Guernsey County, Ohio, for \$400 and costs if they desire to get one of their agents out of jail in order that he may continue to ply his illicit profession for their advantage.

John Frak is the man who became an unwilling guest of Sheriff Berry, at Cambridge. Frak was caught at what is known as the Wolhonding mine, near Buffalo, and from all appearances was doing a considerable business. Sheriff Berry was accompanied by Deputy Sheriff Heskett, and they lost no time in tossing John into durance vile. John was later taken before Justice L. S. Reasoner; and when prosecuting attorney of Guernsey County, B. F. Enos, presented an affidavit charging soliciting and collecting money for intoxicating liquor in dry territory Frak broke down. His plea of guilty brought him the maximum fine under the law.

This same periodical tells us of the tremendous work that is being done by Billy Sunday, Dr. Lyon, W. J. Bryan, and other great and good men enrolled in "the army of the Lord." We are also told of a car-load of beer shipped from Cincinnati to Farsas that fell into federal hands. By the way, that same *Wheeling Advance* seems to be a "live wire" in the temperance work. Its motto is, "Make prohibition prohibit, for the people's good."

"WE ARE MARCHING ON," SURE.

We clip the following from the *American Advance*:

Every day new omens of progress beckon us on. They are freighted with meaning for our cause, and they deserve our attention.

On Jan. 20th, this year, the *Chicago American*, the great Hearst daily, said editorially:

"There will never be another whisky advertisement in these columns. This paper has never advocated any thing that it believed to be detrimental to the public welfare because that it carried with it pecuniary reward. The most insidious form of influence in newspapers is through their advertising columns. . . It was forced to take this position to escape from the incongruity of opposing the whisky traffic in its editorial columns, while increasing the sales by means of its advertising columns."

I see by the January 15th GLEANINGS a person wanted your journal stopped because you had too much to say about tobacco and liquor, as he got a great deal of pleasure out of both. Well, we want you to send us your paper just because we can read the paper and not see any thing about the tobacco and liquor business except something against it.

Gilroy, Cal., Jan. 22.

F. H. EVANS.

Gleanings in Bee Culture

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Editorial

THE reader will be interested in the "good-natured scrap" between the editor and Dr. Miller that takes place in his regular department, Stray Straws, on the subject of painted versus unpainted hives.

A NEW BOOK ON APICULTURE FROM AUSTRALIA.

"AUSTRALIAN BEE LORE AND BEE CULTURE," by Albert Gale, late Bee Expert and Lecturer on Apiculture for the New South Wales Government, has come to our desk. It contains about 300 pages the size of this, taking up the whole subject of bee culture from beginning to end as it applies to New South Wales. It gives particular attention to the influence of bees on crops and the color of flowers and their influence on bee life. The book is not wholly new, but, rather, a collection of the author's published articles, or those that appeared from time to time in the New South Wales *Agricultural Gazette*. Mr. Gale is one of our occasional contributors, and needs no introduction to our readers.

A CORRECTION; DUAL INTRODUCTION.

ONE of our queen-breeders, Mr. Mell Pritchard, at our basswood apiary, calls attention to a misleading statement of ours at the bottom of the first column on page 372—at least *he* misread it, and we suppose others did. He understands that we cage all the queens at the same operation, and explains that we could not do this without having the last queen mated too old to be good for any thing. What we meant to say was that we might have two or more queens in the hive at the same time, but caged on different days. The reader will see that the language on page 372 has a double meaning. Mr. Pritchard calls further attention to the fact that we do not have more than two queens in the hive at a time, and then adds:

We do practice precaging about two or three days before the queens are expected to be laying, with good results, but we never cage two or more virgins at the same time.

HONEY-CROP CONDITIONS; CLOVER PROSPECTS.

THE outlook for alsike and white clover in the central Northern States was never better—that is to say, there is a great profusion of plants and of bloom. If other conditions shall be right we shall have a fine flow. Reports from the clover districts in the East are not quite so good. Experience has taught us that there may be times when we have plenty of bloom but no nectar. But reports in from the clover regions south of us show that the flow has been excellent. One man, one of the largest producers in the country, states that it has been the greatest clover flow he has known for many years.

During the last 48 hours we have had a cold spell—cold enough to make us fear a frost. To-day, June 9, the weather is so cold that an overcoat seems comfortable; yet, remarkable to relate, our bees are storing honey.

Further reports from California show almost a complete failure of the sage crop, although experience has taught us that when we have such failures there may be some sage honey, and the big buyers will be sure to find it.

It would be premature at this time to predict a big yield of clover honey; but if we have the right weather conditions we shall have one of the finest yields we have had for many years.

Our subscribers in the mean time are requested to send in *brief* postal card reports of honey-crop conditions and prospects. Do not write more than one or two sentences, as otherwise we can not tabulate them. These reports are important as they have a strong bearing on prices.

GLUCOSE IN "NEW ORLEANS MOLASSES."

GLUCOSE continues to be a favorite form of adulterant for syrup, as shown by "Notice of Judgment," No. 1835, from the Secretary's office of the United States Department of Agriculture. (In all such literature we notice that the product is called by its real name, that is, *glucose*, instead of the nicer-sounding assumed name, *corn syrup*.)

Four and a half barrels of molasses were seized and condemned because of being labeled in large type "Dixie New Orleans Molasses," and in small type, "Containing Sulphur Dioxide—Compound molasses and corn syrup." In the investigation it was proven that the product was not New Orleans molasses, nor was it entitled to be so called, but was a mixture containing a certain quantity of glucose. Misbranding was alleged because the product was an imitation of, and offered for sale under, the distinctive name of another article of food.

We have always supposed New Orleans molasses to be a product so cheap that no one could afford to adulterate it; but it seems from the above that glucose, unfortunately allowed to be called corn syrup, is such a cheap material that it may be profitably used as an adulterant in New Orleans molasses.

REPORT OF ILLINOIS STATE BEE CONVENTION.

THE Twelfth Annual Report of the Illinois State Beekeepers' Association, containing complete stenographic record of the entire proceedings, is before us. It contains 170 pages of closely printed matter of discussions in what appears to have been a good convention. This is followed by a brief report of the National convention.

This is the only report of any convention, National or otherwise, so far as we know, that is cloth-bound. We are advised that a copy will be sent to any beekeeper, whether from Illinois or any other State, who pays an annual fee of \$1.50, either to the Secretary of the Illinois State Beekeepers' Association, to E. B. Tyrrell, 214 Hammond Building, Detroit, or to the Secretary, James A. Stone, of the Illinois State Beekeepers' Association, Springfield, Ill.

The volume also contains the Second Annual Report of the State Inspectors, by A. L. Kildow, Putnam, Ill. This is a complete treatise on foul brood with a report of the number of apiaries visited, and a list of the counties where disease was found.

THE BAN ON BEET SUGAR FOREVER REMOVED.

In times past (and almost up to times present) a good deal of space in the bee journals has been taken up in argument for and against the use of beet sugar for feeding bees. We ourselves have been somewhat undecided at times, although so far as our own tests are concerned we have never been able to detect any bad effects whatsoever, provided the refined sugar is used.

Last spring one of our subscribers, Mr. E. L. Hoffman, of Janesville, Minn., knowing the difference of opinion in regard to beet sugar, wrote to the University Farm at

St. Paul, of the University of Minnesota. The reply which he received is so interesting and convincing that we are glad to place it before our readers at this time.

THE UNIVERSITY OF MINNESOTA.

DEPARTMENT OF AGRICULTURE,
UNIVERSITY FARM, ST. PAUL.

Division of Agricultural Chemistry and Soils.

Mr. E. L. Hofmann:—I am in receipt of your letter with regard to beet and cane sugars. I would say that, chemically, there is absolutely no difference between these two products at the present time. A number of years ago, when the beet-sugar industry was fairly new in this country, the product of the beet-sugar refineries contained a considerable amount of a substance known as betain, which apparently induced fermentation and aroused considerable prejudice against the use of this sugar. Under the present conditions none of this can be detected, and I am surprised that you found any difference in the two for your purpose, as both the cane and the beet sugar of the better grades are practically 99½ per cent pure.

We could readily determine for you the purity of the sample of sugar sweepings, but we could not determine whether it was derived from beet or cane. The station makes no charge for any of its analytical work.

R. M. WEST, Acting Chief.

St. Paul, Minn., March 29.

This statement, coming as it does from the Division of Agricultural Chemistry in one of our great universities, certainly can not be biased, and it seems to us that the question as to the value of beet sugar for bees should be settled now once for all.

DER BIEN UND SEINE ZUCHT (THE BEE AND ITS CULTURE).

THOSE who can avail themselves of German literature, and are interested in bees, will be interested in the book named above, It was written by F. Gerstung, pastor in Ossmanstedt, Germany. Mr. Gerstung is one of the most prominent beemen in Europe, and one who has been often quoted by Dr. Miller in *Stray Straws* in these pages. It is easy to say that the book has 474 pages besides a copious index, and that it contains a wealth of fine illustrations; but a thorough review of it would be almost equal to the task of writing another book as large as this.

The work in question is not only German in language but in its teachings. So far as we can observe, it is confined exclusively to German methods, with the exception of considerable space to rearing queens artificially. In this the author gives full credit to W. H. Laws, of Beeville, Texas, and to the publishers of this journal. Aside from this, however, it contains no reference to American inventions except to give the size of the Quinby and Langstroth frames. Still, to describe apiculture outside of Germany would have been foreign to the main object of the writer besides making an already large book too voluminous.

In looking through this book the American beekeeper will be struck by the great number of beautiful bee-houses, pavilions, sheds, summer-houses, etc., used in Germany, where space is so limited and lumber still more so. The American beekeeper would consider the cost of these all out of proportion to their value as bee-protectors; but as the German attaches considerable value to ornament for its own sake, perhaps the use of such buildings is warranted by the beautiful appearance they present.

Much space is given in this volume to the depredations of the wax-moth. The many illustrations show plainly what a terrible scourge the moth is there, while in this country it has ceased to cut any figure where the Italian bee has been introduced. The Germans still use, as a general thing, the old black or German brown bee.

The process of egg-laying, both drone and worker, is one of the most striking features of this book, and is splendidly illustrated by half-tones photographed from the combs direct.

On the subject of foul brood thirteen pages are devoted, describing it minutely, but not illustrating it. Its method of treatment is very complete.

We feel sure that this, the fourth enlarged and amended edition of this already celebrated work, will be of permanent value to the readers for whom it was mainly designed, and it will also be a literary monument to the skill and industry of the distinguished author.

ANOTHER CASE WHERE BEES HAVE BEEN KILLED BY SPRAYING WHILE FRUIT-TREES WERE IN BLOOM.

We have had a good many reports showing how bees have been killed by hundreds and thousands by the ignorant folly of some fruit-growers who spray trees while in full bloom. The following letter received from the New Hampshire Agricultural Experiment Station, written by the assistant horticulturist, Mr. W. H. Wolff, is pretty convincing proof. As Mr. Wolff is a scientific man, the presumption is that he would not be mistaken.

The beekeepers of this State are experiencing considerable trouble from trees being sprayed while they are in bloom. From several towns I learn of this having been done this year and last, and the few colonies we have here at the College under my care have had their strength considerably reduced owing to a commercial sprayer having sprayed 500 trees within half a mile of us while the trees were in full bloom.

The first knowledge I had of this trouble was on the morning of May 17, when, on looking at my bees, I noticed the ground in front of the hive was covered with many hundreds, dead and dying. This condition of affairs has been going on for the past

three days, until now when it has appreciably decreased the working force of each hive. I should like to know what suggestions the National Beekeepers' Association has to offer when bees are being killed off in this way. Also whether it is possible to frame a law which would protect them against the work of careless and ignorant people.

I have collected about a pint of bees from the college hives and those of a neighbor, and have dried these out. It may be that you may like to have these to analyze for traces of arsenic so as to get more exact data on killing bees by spraying the trees while in bloom.

Durham, N. H., May 22.

W. H. WOLFF.

Almost in the same mail another letter came along the same lines. It reads:

I see you want reports on spraying fruit-trees in bloom. They are spraying trees around here that are in bloom. Parties take contracts, and they spray through blooming time, paying no attention to the beekeeper's interests. Two years ago I had 40 stands of bees ruined by spraying in bloom. Two years ago there were 100 stands of bees in my community. Now there are by actual count only 25 stands. They spray with arsenate of lead and Paris green, yet they say it does not kill the bees. Even neighbors spray this year in bloom. Why not? The law says they may do so.

McGuffey, Ohio, May 11.

H. McBRIDE.

In this connection it is proper to quote the whole of what Mr. Frank Rauehuss says in the last issue of the *American Bee Journal*, page 151. Here is what he says:

Prof. Gillette says: "When the codling moth begins to appear about the time of full bloom, they do not begin to lay eggs until the majority of the apples in the orchard are one-half of an inch in diameter; when they are $\frac{3}{4}$ of an inch they are laid freely. As soon as the little apples lose their fuzzy coverings the moths lay their eggs very largely upon the cheek of the apple, but *never in the blossom*. Later they find their hiding place in the blossom end of the apple. After the blossoms have fallen and the apples have attained a little size, is the time to spray, and not before."

Prof. Gillette, who wrote the above, has raised these moths in great numbers at the Government Experimental Station, and is considered the best authority on this subject in the West.

In Bulletin No. 89, from the State of New York Experiment Station, we find the following statement: "The trees should not be sprayed while in bloom, for the spray may injure the delicate part of the flower." The Missouri State Bulletin No. 36 says: "Never spray a fruit tree while in bloom. You not only injure the delicate stigma and prevent pollinization, but you are in danger of killing bees." Bees aid largely in pollinizing all fruit trees, and with other insect life are of great service to the fruit growers at this time of the year.

Green's *Fruit Grower* says: "It is a positive injury to spray for the codling moth when the trees are in bloom." The Vermont Station prints the following advice: "Spraying when trees are in bloom is entirely useless; it is a waste of time and spraying material." The United States Agricultural Department at Washington sends out the following: "Pomologists may well join hands demanding and securing a law making it a grave misdemeanor to spray trees while they are in full bloom."

Canada has a strict law against spraying while fruit trees are in bloom. Several of our States have passed similar laws.

Spray only when blossoms have fallen. Those trees that have blossoms on them at the time of the first spraying should not be sprayed until the time of the second spraying some 12 or 14 days later.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

DR. A. F. BONNEY, *American Bee Journal*, 61, brings valuable information as to lime from J. M. Francis, a practical chemist who is also an enthusiastic beekeeper. Ordinary lime contains 10 to 25 per cent of impurities, and 100 pounds of it will absorb about 24 pints of water and 62½ pounds of carbonic acid. But after it is slaked, and in powder, it will not absorb another drop of moisture, although it will continue for some time to take up carbonic acid. So lime in bee-cellars has its time-limit.

A. I. ROOT, you object to paying 25 or 50 cts. or \$1.00 apiece for day-old chickens, but think it good sense and real science to pay \$5.00 or more for a rooster of the right stock. But what if a day-old chick turns out to be a \$5.00 rooster? I think you advise—and the advice is good—to buy several dollar queens in the expectation that one or more of them will turn out to be as good as a tested queen. Why not the same rule with chickens? If the day-old chick is of the same stock as the \$5.00 rooster—well, why not?

I SAID, p. 248, that it was not so well known that frequent changes of temperature favor granulation, and you reply, Mr. Editor, that that's just what A B C and X Y Z teaches. Yes; but are there not a lot of readers of GLEANINGS who have no A B C? And that gives me an opportunity to say to all such that they're making a big mistake. If you can't have both, by all means stop GLEANINGS for a year or two and get the book. [This matter of frequent changes of temperature favoring the granulation of honey has been spoken of several times in GLEANINGS. For example, turn to page 135, GLEANINGS for 1910. Some five or six years ago it was mentioned much more frequently than of late years.—Ed.]

I HAVE just read the report of Illinois Association, which contains a report of the last National meeting. In the Secretary's report, which previously appeared in the *Review*, exception is taken to the action of Mr. France in refusing to allow the League fund to be used for any thing but advertising. It seems to me Secretary Tyrrell can hardly be familiar with the full history of the fund. When it was offered to the National, strenuous effort was made to have it given without any string to it, and it was just as strenuously insisted by the League that the National use it solely for advertising or not get it at all. The National received the fund on that basis, and it would

be a breach of good faith now to divert the fund to any other purpose. Nor is such action at all justified by the consent of all but one of those who contributed more than \$25.00 each. If all should consent except a single one who had contributed 50 cents, that one would have a right to protest that it would be wrong to divert the money to any other use.

Mr. France would have less ground to stand upon if it were impossible to carry out the original intention. But at that same meeting at Cincinnati, it was practically resolved that the National should do the very thing that the League fund was intended to pay for. Mr. France is the only living member of the committee appointed to spend the money. If two such men as he and Secretary Tyrrell were appointed a committee, with free hand to use that fund as originally intended, it seems it might do more good than used in any other way. Why not? [Excellent suggestion! It seems as if this might be the solution of an unpleasant problem. GLEANINGS respectfully refers it to the parties interested. If Mr. Tyrrell and Mr. France can agree on a propaganda of advertising, we see no reason why the fund could not be used. Judicious advertising in the magazines, and perhaps the newspapers, showing the real value of honey as a food, would benefit the industry at large.—Ed.]

THAT'S right, Mr. Editor; "jab" when you get the chance, p. 328. You ask if I'm *sure* it's economy not to paint hives. No; the list of things I'm not sure about is about as big as the list of things I don't know. You want to know whether unpainted hives don't gap at the joints sooner than painted ones. I don't know. I haven't kept any till they gapped. I've kept them only since the first dovetailed hives were made, and they don't gap yet. How soon do your painted hives gap? You ask about covers twisting and checking. Now look here. Did you ever know me to advocate unpainted wooden covers? But with a very few exceptions my covers are covered with something better than paint. Some of them are covered with tin that's painted—at least it was painted—but the majority are covered with zinc, which doesn't need paint. You have never made better covers. You ask if it's economy to leave houses unpainted. I don't know. Depends on the cost of new siding when the old wears out, and the cost of keeping the houses painted during the same time. Now that we've discussed economy, perhaps,

enough, it might not be out of place to say that it might trouble you to prove that I ever said it was economy to leave off paint. It was *you* that gave economy as my reason—not the first time I've been libeled. But if you go to hunting up proof I'll help you enough to refer you to "Fifty Years among the Bees," p. 80, where I say, "I suppose they would last longer if painted, but hardly enough to pay for the paint." My real reasons still remain: Doolittle and the health of the bees.

I've just been down through the apiary, and I didn't find a single hive with gapping corners, nor even with the least inclination toward it. I mention this, not because of its bearing on the above controversy, but because, years ago, so much was said against dovetailed hives because the corners would not stand. If mine are still perfect after all these years without paint, it hardly seems a valid objection. [We accept your correction in regard to the covers. You remind us that you have always advocated the painting of these when made of wood. We admit that the dovetailed hives will not gap at the corners, even if unpainted; but a large number of people use hives not lock-cornered nor dovetailed—some factory-made and many home-made. Shall these people be encouraged to use paint? and is it not true, doctor, that, before you began using dovetailed hives, your old unpainted hives that were not dovetailed, gapped at the corners? If so, was it because of a lack of paint? But aside from the economic side of the preservation of the hives, is it not true that an unpainted hive assumes a gray-black hue—a color that becomes almost pure black? Such hives out in the sun will often drive the bees out of them, and stop honey-gathering altogether. Some years ago, as you may recall, we tested out on a hot sunny day the external temperature of the wood of old unpainted hives, some painted venetian red, and some painted with two coats of white lead. The day selected for the test was very warm—between 95 and 100 in the shade. We placed the bare hand on the white painted hives, and found the surface was merely warm, while the surfaces of the dark hives were almost hot enough to blister the hand. Colonies of the same strength were contentedly working in the hives painted white, but were clustered out badly in front of the dark ones. We can not now recall the difference in temperature, but it was considerable.

It may be argued that an unpainted hive should be kept in the shade; but does not experience prove that shade is detrimental to the early spring development of a colo-

ny? While we have not definite figures to show, is it not also true that, other things being equal, a colony in a painted hive out in the open will work more hours in the 24 than one in an unpainted hive? If the latter were kept in the shade, the variation might not be great; but would that colony in the shade be as far along as one out in the open where the sun could get it? If we remember correctly, Mr. E. W. Alexander and other prominent beekeepers have made the statement that a shaded colony will not fly out as early in the morning nor be as strong at the beginning of the honey-flow as the one out in the open.

This is a fruitful subject for discussion. It is not a question whether Dr. Miller, the editor, or anybody else is right; but it is a question for the beekeeper to solve, whether there is economy in the use of paint, in the greater durability and the condition of the colony for honey-gathering at the beginning of the honey-flow. Dr. Miller and the editor are both willing to be "jabbed," providing the truth can be brought out.

That Dr. Miller might have the "last say" or last "jab" we submitted the foregoing to him, and here is his reply.—ED.]

I've read over what you say more than once, Mr. Editor, have studied it carefully to find a weak spot where I could give you a jab, and find you so strongly entrenched that I feel a good bit like surrendering unconditionally. Yet I have something of a fasthold in the winter welfare of the bees. As my cellar is now warmed, I think it would make little difference—perhaps none—but before the furnace was in it I think damp and mold could be so much worse in the painted hives in winter as to make up for the advantages of paint in summer. I may also offer that in my dovetailed hives that have failed through age the first failure is nearly always at the edges, inside rather than outside, where no paint is applied in painted hives.

In my possible downfall I may take a grim satisfaction in reminding you that you failed to give one argument on your side. You say bees don't begin work so early in the morning if their hives are in the shade; but you failed to say that bees in the shade stop work earlier in the evening. I had marked proof of that when in former years bees were brought out of the cellar and the bees of the out-apiaries were massed temporarily northeast of the shop. In the evening there was a plain line of demarcation, each colony ceasing its flight just as soon as it came into shadow. If you had any gratitude about you, you'd give me a nickel for furnishing this missing argument.

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Wesley Foster's advice about tinkering with American foul brood is thoroughly sound, and every young or inexperienced beekeeper would do well to heed his advice. See page 142, March 1.

* * *

That method of ridding cappings of honey by centrifugal motion, by Mr. D. R. Hardy, and described by Mr. Holtermann, page 188, March 15, would seem to open the way to rid the cappings of most of the honey that sticks to them. It will be remembered that this is the way sugar is treated in refineries to rid it of all superfluous molasses or syrup.

* * *

A good deal has been written of late about bee-veils. I have many times wondered if we could not have a special kind of wire cloth for this special purpose, with meshes say $\frac{1}{8}$ inch instead of 1-12 or 1-14 as at present. This would reduce the obstruction to vision from a third to nearly a half, and give a freer circulation of air. [We already have such a wire cloth. The wires are $\frac{1}{8}$ inch apart.—Ed.]

* * *

P. C. Chadwick makes a good point on p. 140, March 1, where he concludes that pollen is of more importance in stimulating bees to breed in springtime than the feeding of thin liquid sweet where they have enough honey stored in the hive. Last March, on the east coast of Florida bees built up readily, although they gathered very little or no nectar, and were growing lighter all the time; but they found an abundance of pollen. "Pollen is a greater aid in that direction than additional stores," he says, and he is right.

* * *

It seems to me that the March 1st issue was, on many accounts, one of the most interesting numbers I have seen in a long time; and any one who shall say hereafter that women can not be successful beekeepers may be counted as not up to modern ways of business. I doubt if an equal number of articles written by men twenty or twenty-five years ago were more scientific or up to the best methods now known than these written by women from their own experience. One can not wonder, when he sees how well women have come to understand and to practice the art of beekeeping, whether the men are not going to turn this work over to them, as they have to so great an extent the rearing of poultry. However that may be, I feel that this number marks a

new era in beekeeping, or at least one not realized before.

* * *

THE OLD QUESTION OF GRADING COMB HONEY.

In the report of the National Beekeepers' Association at Cincinnati I notice that the question of grading was a live one. Evidently this question has never been settled right or it would not be bobbing up continually. Now it seems to me that it would be well to mention here a few facts or what appears to be such. The first I would speak of is that, the closer the lines of grading are drawn, the more beekeepers are turning their attention to extracting their honey, where grading is not so difficult. Mr. Muth would have only two grades—fancy and No. 1. But how much profit will it be to the beekeeper who produces comb honey when he finds he can not sell more than half his crop because it will not come up to these grades? We are not surprised to learn that there is a scarcity of comb honey on the markets. It is easy to see that it would be more convenient for the honey merchant, like Mr. Muth, to have but two grades of honey. It would be even better for the beekeeper to have only one; but, taking the country as a whole, the bees do not all put up honey that way. I think we might make twenty grades quite distinct and easily recognized. These would all merge from one into another so as to be almost imperceptible in some cases, but yet each as a class would be quite distinct from the others.

Now the question is, How can this great variety be classified so as to suit best the trade and consumers? Shall the beekeeper sort out a little of the best, and call it "fancy," and a larger amount and call it No. 1, and melt up the rest? or shall he sort it out so the cases he puts up can have some one, two, or three words that will accurately describe it, each case being of a kind? I believe it is the business (I almost said duty) of the merchant to find a market for the off grades of honey as well as the "fancy" and No. 1. When the oil-refineries found they had an immense amount of gasoline, of so little value that they let it run to waste, they set men to inventing stoves that would consume it, and then engines that would use it for power, until today the demand is such as to bring great profits to refineries. Now, I believe there could be an opening made, or a demand at a fair price for all our grades of honey that are fit to put up, and yet that will not grade No. 1 or "fancy."

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

A NUMBER OF QUESTIONS ANSWERED.

Instead of reproducing each inquiry and answering each question separately, which would take more space and yet not give any more information, I am incorporating all the answers into a short article. These inquiries, from four different persons, are all on the subject of bulk-comb-honey production, some of the questions being identical, while others are entirely different. Many inquiries are made for a booklet on our method of management, the hives we use, and on the matter of using the divisible-brood-chamber hives, and the production of bulk comb honey. To this we shall have to reply that we have no literature on any of these subjects other than what the bee journals have so kindly given during a period of fifteen years or more, although we have been requested several times to have such booklets published for the benefit of those who are seeking information. Our time has been so much taken up that we have not even given the matter serious thought, and consequently do not know whether it would be advisable for us to do so.

THE HIVE WE PREFER.

The most frequently asked question is in regard to our preference of the hive to use in connection with our methods of management, especially for bulk-comb-honey production. It is already well known that our long years of experience with different hives has given us an opportunity to test the divisible-brood-chamber hives to a finish; and since we have had the best results with them we prefer them. They are composed of shallow supers known as the Ideal shallow extracting-supers, of the ten-frame size, with shallow Hoffman frames, $5\frac{3}{8}$ inches deep, as listed in the supply-dealers' catalogs. Our frame has a heavier top-bar, however, $\frac{1}{2}$ inch thick. It is narrower also than the regularly made top-bar, or $\frac{7}{8}$ inch wide. There is no comb-guide or groove for the foundation, as this is fastened with melted beeswax.

BURR-COMBS

The foundation is used in full sheets, of the thin-super grade, and without wires always. This grade of foundation is just right, and heavy enough so that brood foundation is not necessary in these shallow frames. The same supers or *shallow stories*, as they ought to be called, are used the same way throughout for brood-chamber and supers—a great advantage on account of the interchangeability. There is no trouble about too many burr-combs between the several stories, or the frames of one story

and those of another, in our manipulation of this kind of hive. It seems that beekeepers often allow their colonies to become too crowded, and hence experience this trouble. Colonies always allowed room as needed will have little occasion to build between the bottoms and tops of frames of one story and another. Proper manipulation of the several stories, and interchanging with another from below to above, and *vice versa*, which is necessary to accomplish the best results, never allows the stories to remain so long in the same position as to encourage serious burr-comb buildings. Our narrow, thick top-bar is no more, if as much, subject to cause burr-comb building than the thinner and wider top-bars regularly furnished. The latter are more subject to sagging, however, and often there are more burr-combs, as a consequence.

THE VALUE OF SHALLOW EXTRACTING-SUPERS.

With several hundred shallow extracting-supers on hand, the beekeeper has a valuable investment, and is better prepared for bulk-comb-honey production than if he did not have them. By no means would I cut out these valuable combs and melt them into wax, having to fill the frames with full sheets of foundation for bulk comb honey. These supers should be placed on the regular brood-chambers early in the spring. First, to allow more breeding room for the colony, meaning a stronger colony for the honey-flow later; and, second, it furnishes a place for the bees to store the first scattering honey that comes in before the main honey-flow begins. We use these supers, one over each brood-chamber proper during the entire winter. In fact, this super is, with us, part of the brood-chamber until the honey-flow begins. Just before the honey-flow comes on, this super or upper story is raised up, and the new supers with frames filled full of foundation are slipped in between it and the brood-chamber. Tiering up as with section honey is then continued, and this is one of the best ways to induce bees to begin work, and work with great energy in the supers immediately upon giving them. The extracted honey out of the upper or first super with the shallow extracting-combs, is used for putting up the bulk comb honey, hence is that much profit. The same super is again used after the main honey-flow to catch that honey, which would not be enough to warrant putting on another comb-honey super, and likewise goes for extracted honey, as a great deal of it is needed to put up a good crop of the comb honey.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

PROBABLY SAC BROOD INSTEAD OF BLACK BROOD.

I submit the following extract from a letter just received from Mr. J. D. Bixby:

Your Mr. Meeker, County Inspector, is laboring under some misapprehension as to *black* brood. Several parties have been down, and others have written me, and I have also seen fresh samples from four hives in two apiaries, which he had pronounced black brood, which are distinctly *not*, but are unquestionably a bad form of pickled brood or sac brood as the Department calls it. The same also prevails in parts of Riverside Co., and about Lordsburg and Pomona. I had a man here from Pomona yesterday with samples which seem to be worst where the honey-flow has been light.

It is some relief to hear that there is even a possibility of our not being so close to the disease as has been reported. Mr. Bixby is a man of wide experience with this disease, and it is very likely that he is correct, as Mr. Meeker has not had to combat the disease, and has not lived where it has prevailed.

* * *

WHAT TO DO FROM NOW ON.

The problem from now on that will absorb the mind of the California beekeeper will be how to manage the bees with the least possible expense, and keep them in the best possible condition. Some will have the foul-brood question to give them additional concern. Near the coast some will doubtless turn toward the bean-fields for relief, while in the foot-hill region there are those who can go higher in the mountains for relief, the main object being to keep the bees in good condition in anticipation of a honey-flow next season. Nine years ago my uncle and I hauled five loads of bees into the Julian Mountains (a distance of ninety miles) to summer them. They were not returned until the following April, but came back in fine condition, and averaged 240 pounds per colony for the season. There are many places nearer that I believe would be just as good. But we can not all go. In fact, the great majority of us must stay where we are and work out our own salvation.

In the natural course of events eight months must pass before we can expect relief, four of which will be during the hot summer. Then we may have a repetition of the season of 1905, with an open wet winter allowing the weak colonies to build up rapidly, to our great delight.

Honey will doubtless be sold at a good price, and there will be great temptation to take every thing found above the brood-chamber. In fact, it is now bringing 10 cts. a pound for white. The feeding-back of sugar is the plan of those who take all

in sight. This I believe to be false economy, for it will not be possible to secure the same results from a pound of sugar that one would get from a pound of sealed honey. Then, again, sugar may not be as cheap later as at the present time, for it is sure to advance during the fruit-canning season, and may not return to its present level. Even if it should, it is not the equal of honey for breeding purposes.

Many have already extracted all old honey from their supers to prevent it from blending the new crop into a darker grade. This must be fed back or sugar used in its stead.

I have been so doubtful of the season from the beginning that I removed the old honey, but did not extract it, and have now returned it to the hives, placing two supers over the strongest colonies with an excluder below. It will be left there until the weaker colonies need it, then it will be given to them in the comb. I prefer to carry the combs over by storing them on the strongest colonies, for the reason that they are better able to protect it from moth and robber bees where it contains honey. I never make a practice of sulphuring combs for the purpose of keeping moths out if there are bees sufficient in the yard to protect them through the summer months. They may be removed late in the fall and stored until needed in the spring, and thus avoid the disagreeable odor of sulphur.

Usually breeding will not entirely cease if there are plenty of stores on the hive, and in consequence it is not best to let a colony get too low in stores, but to take combs from the stronger ones and give to the weaker ones before they begin to be poverty-stricken, and thus encourage normal breeding. The season may not be as bad as I anticipate; but it can not be very good for breeding purposes after the hot weather sets in, for what little green vegetation there is in the foot-hills will soon be parched and dry from the hot summer sun, and the chances are that in many sections of the foot-hill region we shall find our colonies very much run down by autumn, for many are none too strong now.

Have courage. This is not the first period of the kind California has seen, and will not be the last; but there will be good periods between, and some day we shall realize more for our honey crop than we could sell the bees for at the present time, with interest at 6 per cent added. It is no time to get the selling fever; but in my opinion it is the very best time to buy.

Conversations with Doolittle

At Borodino, New York.

WAX SECRETION AND COMB-BUILDING.

"When may we expect that the bees will secrete wax and begin building comb?"

"Among some of my early recollections is this from L. L. Langstroth's work on bees: 'It is an interesting fact which hitherto seems to have escaped notice, that honey-gathering and comb-building go on simultaneously; so that, when one stops, the other stops also. As soon as the honey harvest begins to fail, so that consumption is in advance of production, the bees cease building new comb, even though large portions of the hive are unfilled. When honey no longer abounds in the fields, it is wisely ordered that they should not consume, in comb-building, the treasures for winter use.' In addition to this I would say that, under the same circumstances, the higher the temperature up to 90 or 95 degrees in the shade, the better results. This is in harmony with all general affairs as they naturally take place. Warm weather being necessary for the secretion of nectar, it is but natural that the bees should go out in search of it, and with the gathering of more honey than is needed for the economy of brood-rearing, wax secretion invariably takes place when more room is needed.

"What is the estimate in pounds of honey necessary to make one pound of wax?"

"This has been variously estimated at from six to twenty pounds. I think it was Huber who first gave the estimate of twenty pounds; but, if I am right, his statement was made after confining the bees and feeding them honey. This, of course, put the colony out of a normal condition, under which circumstances more honey would naturally be consumed owing to the bees becoming agitated through their struggle for freedom. Others, who estimate as low as six pounds, think that pollen helps in the secretion of wax, and a high temperature is considered an important factor, on the principle that it seems to take much less food for hogs to put on fat in warm weather than in cold. Others think that, in addition to temperature, the freedom from vigorous work in the fields has very much to do with the matter. With a partially enforced idleness bees will secrete wax and build comb very fast. There is hardly an apiarist in the world who has not noticed with what alacrity comb-building is carried on by the newly hived swarm previous to extended brood-rearing. With a high temperature and almost perfect immunity from other duties, wax secretion is carried on most economically."

"With a hive partially or fully filled with comb, when does wax secretion begin?"

"Generally, not until all available cells are filled to an extent consistent with the evaporation of moisture contained in the nectar brought in from the fields by the field bees. Up to this time all repair work about the hive and comb requiring wax is made at the expense of other portions of the comb already built, as is invariably indicated by the color. The beekeeper who has not noticed this is an exception and not the rule. Put an empty frame having only a starter down at the side of the outside comb of the brood next to the brood-nest, and see how it will be filled with comb of all shades and colors. Then look at queen-cups and queen-cells as they are being built. These always correspond in shade with the comb upon which they are constructed.

"It is rightly claimed that there are times when *wax secretion is imperative*. Years ago Prof. Cook found that, during the height of a profuse nectar flow, wax scales could be found upon the field bees which were visiting the flowers. With plenty of empty cells comb extension is unnecessary, either for breeding purposes or the storage of honey. But with a good nectar flow, and all available cells filled, the field bees transfer their loads to the comb-builders and nurse bees, which, being unable to disgorge themselves, are compelled to secrete wax the same as a new swarm does when without comb. Under both conditions comb extension is desired. With the swarm this desire can be satisfied, but not with the other. Close observers have noticed that, toward the close of a day when the nectar secretion has been exceptionally good, so that the nurse and comb-building bees are gorged almost to bursting, the old field bees have been compelled to keep their loads, and will cluster out on the hive with plenty of nectar still inviting them to a sumptuous feast. At such times, after 24 hours the old fielders can be found bearing wax scales, even though these scales are generally confined to the comb-building bees under most circumstances. Hence it is easy to see that, with such an exceptionally good flow of nectar, there must come a waste of wax with a hive and supers filled with fully occupied combs; and under such circumstances, where foundation is given, the sheets are not disturbed at all. Then it is that the bees build combs by adding their wax to the foundation, thus giving a heavy base or midrib to section honey."

General Correspondence

A NEW OLD TREATMENT FOR AMERICAN OR EUROPEAN FOUL BROOD

Trapping the Bees Away from the Old Combs by Means of a Bee-escape

BY W. W. CASE

[Last winter we attended a convention of the Pennsylvania State Beekeepers' Association that met at Harrisburg. Among others, we had the pleasure of meeting Mr. W. W. Case, whom we had long known by correspondence. In a paper he read in that convention Mr. Case gave this method of treatment; and as he and his friends have had such excellent success with it, we asked him to prepare a special article with drawings for GLEANINGS, describing the method, and here it is.—ED.]

After more than twenty years of contact with and study of both American and European foul brood, I have evolved, and am at last ready to give to all beedom, a safe and sane treatment that renders the terrors of foul brood one of the least problems in successful apiculture—far less than that of always successfully wintering—a treatment that will not interfere with the work of api-

2. Any infected honey stored in the combs during treatment will always cause a recurrence of diseased conditions.

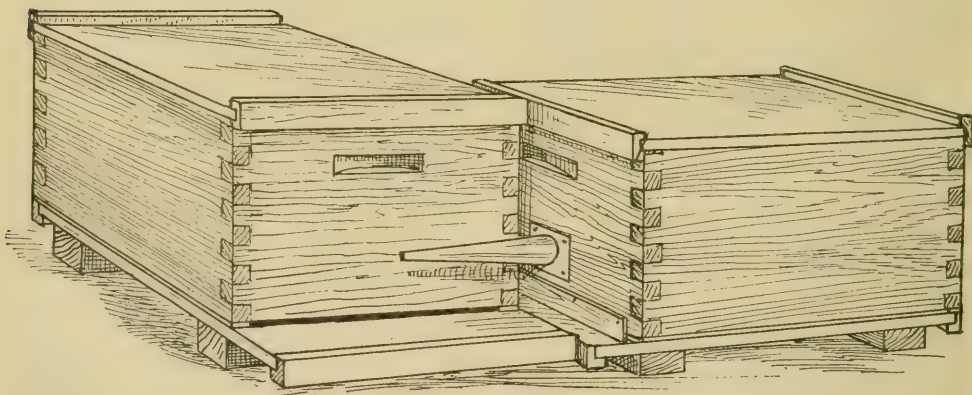
3. Normally, bees always leave the hive with empty honey-sacs.

4. Bees on being disturbed in the hive always give more or less honey to their fellows, which, after the disturbance is over, is placed by the field workers in their handiest cells before they again go to the fields.

5. At the commencement of treatment there must be no comb in which honey may be stored.

From the above five principles I have been able to evolve the following treatment, which is just as safe in the hands of the amateur as of the expert, and without the loss of colony, brood, honey crop, danger from robbing, or spreading the infection in any way. It applies equally well to both forms of disease.

Infected colonies in early spring may, if not too far advanced in a diseased condi-



W. W. Case's method of allowing the bees to pass naturally and quietly away from foul-broody combs through a tube bee-escape.

ary inspectors in the least, but will prove a boon in solving their problems. In fact, it already has the unqualified indorsement of inspectors in Pennsylvania and New Jersey; and while I have bred by selection a strain of Italians absolutely immune to European foul brood, the treatment for infected colonies is the same for both kinds, and is based on the five following principles worked out and successfully proven in my own apiary, while surrounded, even today, by the most rabid infection of both kinds of disease.

FIVE PRINCIPLES.

1. The adult bee does not carry infection while digesting infected honey.

tion, cast normal swarms, especially if confined to the hive-body, in which case the parent hive should be set to one side a few inches, and the swarm hived on full sheets of foundation on the old stand, after which remove all queen-cells from the hive which cast the swarm, return the combs, and close the hive bee-tight. Next bore a one-inch hole in the end of the hive, over which nail a one-inch tin-pipe bee-escape about six inches long, and tapering to a point just large enough for a single bee (including drones) to pass out at a time, and place the hive in position shown in the cut with the small end of the tube about two inches in front of and above the entrance. It is

imperative that the infected colony hived on foundation (or starters) on the old stand be not disturbed under four (and, better still, five) full days; for when the bees start to the fields after hiving, the wax-workers will take all the infected honey brought from the old hive, and, if left absolutely alone, will digest it all in forming wax; but if disturbed before four days so as to exchange honey, they will, before again going to the fields, place the honey, now probably infected, in the first cell the bees have drawn, instead of giving it to the wax-workers, when it will be fed to the first brood that hatches, thus at once reinfecting the colony. Should it become imperative, from any cause, to break the wax cluster before the fifth day, all comb built must be removed, and fresh foundation given. In the course of about four weeks all the brood in the hive with the pipe escape will have hatched and passed out, and united with the parent colony; and as all have left the hive with empty honey-sacs there is absolutely no danger of their carrying the infection. It is, perhaps, needless to say that the piped hive must in no wise be disturbed until the last bee has hatched and passed out, when it can be removed to a place of safety, and the wax rendered at leisure.

Colonies that do not swarm can be shaken on foundation in a clean hive on the old stand, the hive sealed bee-tight, and piped out as before. In shaking, it is best to leave enough bees to care for the unsealed brood, as they will pass out and unite with the treated colony in a short time any way.

Colonies in box hives, whether diseased or healthy, can be drummed out and transferred with the pipe, with no danger of robbing, infection, loss of brood, nor drone brood to dispose of. Neither does it necessitate smashed-up hives and the general muss accompanying transferring, and the wax rendered by a good press will far more than pay for the foundation used.

I have still to learn of a single failure in the cure of foul brood by the above method absolutely carried out, either in my own apiary or in those of others who have used the method.

Frenchtown, N. J.

[This plan is not new, neither is it old. The basic principle was given by Mr. M. M. Baldrige, of Illinois, in 1894; but Mr. Case's modification of it is new. The old original Baldrige treatment was much the same as that given by our correspondent above, with this difference: Mr. Baldrige put a new clean hive on the old stand. In this hive he placed a frame of brood and bees from a healthy colony, and the queen

from the diseased colony. The queen is of course caged for 24 hours. The rest of the space was filled with frames of foundation. The old hive was set to one side, pointing in the same direction, and as close to it as possible. In front of it was attached a bee-escape consisting of a tapering perforated tin tube, all other means of egress being closed. The perforations of course were too small to admit bees. The flying bees and hatching bees, as fast as they would come out of the parent colony, would go into the new hive on the old stand. The old hive was relieved of its bees and brood, leaving nothing but combs and honey to be melted up.

It will be observed that the Case modification is much the same, except that his tin tube has no perforations. It is six inches long, and just large enough to let one bee or drone through. Mr. Case explained to the writer that perforations have a tendency to attract robbers; that the solid tin tube, with its opening so far from the parent hive, does not draw robbers.

The Case method has the further advantage that it delivers the bees, young and old, to a point immediately in the center and in front of the entrance of the hive on the old stand, and as fast as young bees hatch out from what brood may be healthy, they reinforce the swarm. By this treatment no healthy brood is lost; and as the average of diseased colonies will contain only a small percentage of infected brood, there will be but very little loss through the treatment.

The only caution we wish to offer is that the parent hive be properly shaded if the treatment is applied in hot weather. We have had reports from those who have tried the Baldrige treatment, showing how combs were melted down because of the contracted entrance through the bee-escape. The *solid* tin tube would be worse in this respect than the perforated tube. It will be simply impossible for bees to ventilate a hive exposed to the hot sun with a solid tin-tube bee-escape attached as in the drawing. If hives are in suitable shade, or if the weather is not excessively warm, the treatment will work as described by our correspondent.

This treatment, or a modification of it, has the endorsement of the Bureau of Entomology—see Bulletin 442, by Dr. Phillips, subhead "Treatment with Bee-escapes."

From the fact that we have heard excellent reports from the modified Baldrige treatment, we have no hesitation in recommending it to our subscribers, providing the weather is not hot nor the hive exposed to the sun.—ED.]

THE VARIOUS PHASES OF THE SWARMING PROBLEM CONSIDERED

Caring for the Brood from a Shaken Swarm; Removing the Queen and Destroying the Cells

BY DR. C. C. MILLER

[A short time ago in one of our letters to Dr. Miller we expressed the wish that he would tell us more fully than he had explained in the various 'Straws what he knew about the prevention of swarming for the production of comb honey—that is to say, we desired him to give us in an article his latest revised ideas on the subject. Probably no man in the United States who is a producer of comb honey has given this more earnest and thorough attention than the sage of Marengo. The article will speak for itself.—ED.]

I am requested by the editor to tell what is the best way to prevent swarming. I don't know, because there may be some plan that I know nothing about that is away ahead of any thing I know. But as I have been fighting bitterly against swarming during my whole beekeeping life, it may be that I can say something that may be useful to those of less experience.

Swarming can be prevented—at least for a time; but I question whether there is any profitable plan of treatment that will allow us to say: "There is a colony which has been so treated that it is absolutely certain not to have any thought of swarming during the present season." Even when a colony throws off a natural swarm, although the rule is that (leaving out of account after-swarms) neither swarm nor mother-colony will swarm again till another year, yet there are exceptions to the rule. But those exceptions are so rare in most places that if they should all be allowed to abscond the loss would not be great. It is probably safe to say that a colony can be so managed that it will be just as safe from swarming as a colony that has already swarmed naturally.

One plan of such management is the well-known one of shake swarming. This is really anticipated swarming, as the plan is merely to take away all brood, leaving the bees in the condition of a natural swarm. As the bees sometimes desert when left entirely without brood, one frame of brood may be left for three or four days, or until the queen gets fairly started in one or more of the other frames. It has the advantage over natural swarming, besides other advantages, that *all* the bees may be left with the swarm. It has, however, the disadvantage that taking away the brood weakens the colony by just so many future workers. It may be urged that bees do not go afield till 16 days old, and so it will be from 16 to 37 days before the bees from this brood will become fielders—too late to count much on the harvest. But the harvest may last

beyond that. Besides, the department of labor in which a worker engages is not altogether a matter of age, but depends to some extent on the needs of the colony. Each young bee that emerges to-day may liberate one of its older sisters for field-work, whether that older sister be more or less than 16 days old.

But with shake-swarming there is a way of recouping half the loss caused by taking away brood. When the first lot of colonies are shaken, say half or less than half of the apiary, pile up the beeless brood three, four, or more stories high, over colonies that need not be very strong. Then eight days later, when the brood in these piles is sealed, shake a second lot, and, instead of giving them empty combs, give them the sealed brood from the piles, shaking off all the bees in front of the hive which was under the pile. So far as I have tried it, these frames of sealed brood work just the same as empty combs.

It is often said that a queen of the current season's rearing will not swarm until she has wintered over. That depends. If a colony is fully in the swarming humor, having cells well started, and the old queen is exchanged for a young one, the colony will just as promptly swarm with the young one, even though she may not have been laying a week. But if by any means the colony becomes queenless, and rears its own queen, or if a ripe cell be given when it is made queenless, the resulting young queen will not swarm that season. In general, if a colony be kept ten days without a laying queen, and a young queen be then given, either a laying queen or a virgin, there will be no swarming. But it must be remembered that rare exceptions with these young queens will occur. They are probably more likely to occur with Italians than with blacks. The later in the season the young queen is reared, the less likelihood of an exception.

A way, then, to prevent swarming is to remove all queens (at the beginning of the clover harvest in clover regions) and ten days later destroy all queen-cells but one. Or, better still, destroy *all* cells, and give a young laying queen.

For those who are desirous of improving their bees, this plan of never allowing queens more than a year old has a serious objection. It gives no adequate opportunity to test the value of a queen as a breeder, for the credit of a crop must be divided between the two queens that have furnished the workers. A compromise plan must then be followed, and the one generally followed by the writer may here be given.

As soon as there is any suspicion that the

Continued on page 118

THE BOSTON IVY AS A HONEY-PLANT

BY A. S. KINNEY

While talking with a neighbor one day mention was made of some honey which he had purchased from a Mr. X in an adjoining town. "This honey," he said, "had such a strong odor of the horse-stable that they could not eat it." Knowing the location of Mr. X's apiary as I did, and the careful kind of man he was, I knew at once that the odor was not that from the horse-stable, but probably from a certain kind of nectar which the bees had collected. Having never seen in the bee journals any mention of the plant which I presumed was the cause of the offensive odor of Mr. X's honey, as he lives near where there is much of it I have thought perhaps the readers of GLEANINGS would be interested in the following observations which I have made upon the Boston ivy (*Ampelopsis veitchii*) of the florists.

This vine was introduced into this country a number of years ago from Japan, and at once gained great popularity because of its hardiness and rapid growth. It is especially adapted to use upon stone and brick buildings, and wherever one finds such buildings in the Northern States they will usually be more or less covered with *Ampelopsis veitchii*.

Where an apiary is located near a city or village where there are mills, often there are acres of the plant within range of the bees. This may be a most desirable state of affairs, as it is in this especial section where my apiary is located, while in other sections, where there is a mid-summer flow of nectar, it might prove a very serious objection. From my own observations, however, it appears to me that the chances are more in favor of the ampelopsis being a help than a hindrance where it forms a part of the bee pasturage. In my own case, now that I know how to take care of the nectar when it comes in, I find that the ampelopsis fills in

a considerable time when the bees would be idle, probably hanging on the front of the hives, or, worse, trying to steal from their neighbors.

The ampelopsis usually, in this region, begins to bloom between the 15th and 20th of July, at which time the clover-flow is about over, also locust and basswood. These plants often continue in blossom four to six weeks, those upon the north side of buildings coming into blossom more than a week later than those on the south side. The bees are very fond of the nectar from these flowers, simply going crazy over it. Although they often collect more than they need for immediate use, and store it as surplus, it is very difficult for me to get any considerable quantity pure, as it is more or less mixed with other kinds of nectar, especially white clover, my bees having access to several acres of lawn upon which there is considerable white clover all summer. The bees work upon the white clover in the morning, as there seems to be no flow of nectar from the ampelopsis until about noon. After this flow begins one will seldom see a bee working on any thing else. This flow usually continues until nearly night, and during this time one would think by the sound that there was a swarm in the vines. In



The familiar Boston ivy, *Ampelopsis Veitchii*.



W. C. Waller, of Wiggins, Miss., with a prime swarm that issued March 25. The bees conveniently clustered on a limb from a fig tree that had been thrown over a fence.

fact, I have been notified twice by persons hearing the noise that my bees were swarming.

So far as I have been able to observe, I do not find the honey from this plant objectionable to eat. One soon becomes accustomed to the odor, and there seems to be no bad taste. I have never noted any injurious effect from its use, either as food or as winter stores for the bees, and have not been able to determine whether the nectar itself has the objectionable odor or whether it is absorbed from the pollen. I have often observed, however, that other honey stored in the same place with the ampelopsis honey will soon become scented. When capped honey is left on the hive while this nectar is coming in, it seems almost as strongly scented as the ampelopsis honey itself.

The method I have practiced for several years seems to work very well with me; but probably under other conditions this plan would have to be modified. As soon as the first ampelopsis blossoms appear I remove all supers. If a colony is very full of bees I put on a second story, and into this I put any combs that are not ripe enough to extract, and fill out with empty combs. If there is a considerable flow of nectar coming in at this time, as soon as the brood-nest begins to get crowded in those hives that have no supers, I put on a second story, and move the full combs above, and put

empty combs below; but as a rule there is not much more nectar coming in than the bees need for food except in strong colonies. When the ampelopsis flow is over I remove all of this honey I can from the strong colonies, and store it above such colonies as are not strong enough to give any surplus from aster and goldenrod, and give to the strong colonies the partly filled sections that I had taken off earlier in the season. When it comes time to take off the supers I distribute the combs of ampelopsis honey among the hives as they are needed, feeding sugar syrup to those colonies that are still short of stores. This method works well in a small apiary.

I do not know whether it will do as well in a large one.

South Hadley, Mass.

THE HOMES OF BEEKEEPERS

BY WESLEY FOSTER

The home is the center of our national life. If we have not wholesome and happy homes it matters not how successful our business is—we are not getting the best out of life. We hear continually of the hardships of life on the farm and the barrenness of most of country living. The majority of specialist beekeepers live near or in towns, so they come in what we may call a semi-rural class. From my observation I believe that most beekeepers' families have fewer hardships and more pleasures than the majority of farmers' families. Rural conditions are improving, and well they may. The point is that beekeeping contributes to a wholesome, full home life. The remuneration for capital invested and time required is better than most callings coming within the agricultural class. I want to show you a few of the beekeepers' homes that have led me to make these observations. These are representative of western conditions.

The upper left-hand view is the home of Hon. O. C. Skinner, Montrose, Colorado. Mr. Skinner owns about 200 colonies of



Some homes of Colorado beemen. The middle view on the right shows R. W. Ensley's "iron-clad" mouse-proof bee-house.



FIG. 1.—Willows struggling to get a start.

bees, and manages a part of them himself. In a later article we will show a picture of one of his apiaries, located on a shed roof. The upper right-hand view shows the home of F. W. Brainard, Canon City; and the next one, the middle view on the left, the home of Geo. F. Lester, at Delta. The middle view on the right, while not the *home* of a beekeeper, is nevertheless the home of one of them for a part of the working hours, being the mouse-proof bee-house built by R. W. Ensley for one of his out-apiaries in Delta County. It is covered with sheet iron painted black. The two lower pictures show the homes of A. F. Foster, Boulder, and A. F. Stauffer, Delta. In connection with the latter, it is interesting to note that the bees paid for it in one year.

Boulder, Colorado.

THE WILLOW AS A POLLEN AND HONEY PLANT

BY J. L. BYER

Among the different honey sources of Ontario and other sections in the same latitude, probably none are more important than the willows, so familiar to nearly every one. True, they are not to be compared to the basswood, clover, and other sources of surplus honey, yet indirectly they play a very important part in beekeeping, as they are very necessary for the early pollen and honey they yield at a time when brood-rearing needs just such a stimulus. I believe it is estimated that there are about 30

varieties of willows native to Ontario; but personally I know only a very few by their right names, and generally the ones we are familiar with are called by local names whenever we refer to them. Mr. Doolittle, if I am correct, claims that the pussy willows yield no nectar; but I am convinced that in this locality they do yield some as well as an abundance of early pollen. In this connection it is well to recall the fact that Mr. Doolittle claims that the basswood yields no pollen in his section, while here, more than once, I have seen the bees getting large quantities of greenish-colored pollen from this tree, all of which goes to show that either localities differ or that observations have been made at a time when atmospheric conditions were not favorable for the secretion of honey in the case of the pussy willow, or for pollen in the basswood.

The large varieties of the willows, such as are commonly seen around mill-dams and creeks, are great yielders of nectar, and I have often seen the bright drops glistening in the early morning of a warm day in late April or early May, according to whether we have an early or late spring. With good weather for a few days, the strong colonies will literally flood the brood-nests with nectar, and brood-rearing receives a tremendous impetus such as no artificial feeding will bring about. Once I knew of a large quantity of surplus taken from an apiary near us, but that was an exceptional season, and the bees were abnormally strong. It is not likely to happen again in twenty years.

The willows in general are very easy to propagate, a small limb stuck in the ground

in early spring nearly always growing, especially if the soil is of a moist nature. Along the banks of streams it delights to grow; and it is wonderful to see the buffeting it will stand from ice, floods, etc. Once getting a foothold it grows rapidly, and defies almost any thing that would easily kill any other tree. Within a few yards of our home a stream runs through a strip of bottom land about a quarter of a mile wide, and for a number of years these "flats" near us were pastured closely. Every thing had been cleared off in the shape of timber, and naturally the cattle kept all willows that might get a start after the spring floods trimmed off at sight. During the past four or five years this land has been devoted to growing hay, and the willows that have started along the sides of the stream are forging ahead, and are in many cases out of all danger of the cattle. The farmers do not object to them, as they act as a soil-binder and prevent the banks washing away each spring. Great floods rush through this flat land every spring, and floes of ice strip off much of the bark of the young trees, but still they grow.

Fig. 1 shows some of the willows referred to, and will give an idea of the harsh usage they have to endure each spring in their struggle for existence. The "flats" had been covered with a raging torrent the day before the picture was taken, and the following night a sharp frost came and the stream lowered, leaving an ice jam about a quarter

of a mile long. The willows can be seen at the left of the picture, with the ice piled around them. In the distance, and to the left, can be seen our house, while to the right, still further away, will be noticed the church that our family attends.

The other picture shows the stream just a few yards west of the house, and a neighbor's bridge for crossing to the road. The large willows shown there were planted to help hold the abutments of the bridge from washing away in the spring freshets; and it is not so very many years since we stuck in mere branches, and now they are great trees that serve the purpose originally intended when they were first planted, and are, besides, a source of delight each year to the beekeeper and his family who live so near them. If any one has waste land it certainly pays to plant the larger varieties of willows for bee forage, as they grow so very quickly and yield nectar every year provided the weather is suitable for the bees to visit the trees at the blooming period. One man I know, who is not a beekeeper, plants willows along a narrow stream that runs through his property, to avoid the land washing away, and in addition to filling that purpose, admirably he systematically uses this ground for producing fuel for his use in summer months, cutting down the trees as they assume large proportions, but all the time putting in fresh slips to keep up the supply.

Mt. Joy, Ont., Can.



FIG. 2.—Willows planted for the purpose of preventing bridge abutments from being washed away.

SOUTHERN BEEKEEPING PROBLEMS UNLIKE THOSE OF THE NORTH AND WEST

BY L. W. CROVATT

When the ordinary every-day beekeeper of southeast Georgia reads in the bee journals of the perplexing problems encountered by brethren in other parts of this great country centering about the wintering proposition he should feel thankful that this is not one of the troubles which confront him.

Ordinarily speaking, the terrific rigors of the snows and freezing temperatures may be said not to exist in "this neck of the woods." True, we have at times weather which is unusually cold; but there is never in the region of the coast, in "the flat lands," such low temperatures that strong colonies would freeze, even with full-depth entrances, such as are used in summer. Hence the bees are wintered on the summer stands.

In other words the original place where the colony is put is regarded as a definite fixture for all time, providing, of course, that no move otherwise be deemed necessary. Hence the average apiarist is enabled to sit calmly by the fire in the winter and reflect upon the troubles experienced in the West and North, where the task of taking the bees to the cellar and again moving them to their stands when the "mystic touch of nature" will have caused the balmy air to be again suited to the needs of the busy workers.

Down in Georgia, on the banks of the Savannah River, some three hundred miles from Atlanta, the capital, the average beekeeper can also smile at the thought of the problem of "building up" for the spring flow. Further upstate there are splendid spring flows, principally from the titi and

gallberry, which afford a water-white honey of splendid color and body and of excellent quality. But down here in Chatham County the spring flow may be said to be a negligible quality, for there is little to be had of the superfine blend of amber honey from the myriads of wild flowers.

It is unnecessary, therefore, to worry particularly about the "building-up" process. True, it is recognized that strong colonies are desirable under any and all conditions; and we, for this reason, keep an eye open for developments, giving "the helping hand of man" to nature if necessary. As a usual thing, however, mother Nature is fully equal to the occasion in this locality.

"Why, far-southern Georgia must be the ideal spot," I hear some one say in fancy. But pause, brother; for, while we have ideal climatic conditions, we get practically no spring flow in this section of Chatham County, and are, therefore, absolutely dependent upon fall flowers, principally goldenrod and swamp myrtle for our surplus, and fall weather is, to say the least, rather uncertain.

This spring I have on the hives at this time (my home apiary of fifty colonies) about eighteen hundred or two thousand pounds of a very dark inferior honey secured from a source unknown as yet, which will probably not net three cents a pound; but this is the exception to the rule as before noted. I get \$2.00 per gallon for fall honey.

Queens in strong colonies as a rule begin depositing eggs about the middle of January. This depends largely upon the honey left over from wintering, as it is unusual to disturb the brood-nest. By early March, peach, pear, and plum trees begin to bloom, and this gives a great stimulus to brood-rearing.



A corner in one of Louis H. Scholl's apiaries of divisible brood-chamber hives,
See Beekeeping in the Southwest.

By April the colonies begin to swarm if let alone; but prevention of natural swarming is greatly desired. I have adopted the method of seeking the queen and removing her on one frame of brood, taking out the brood-nest and placing on the bottom-board the super or full-depth extracting story (which is always empty in early spring). The brood-nest with the other seven frames is placed above the honey-board. If no increase is wanted I go back in eight or ten days and destroy the queen-cells; but when increase is needed I merely leave an opening under one end of the cover. In time I have a fine Italian queen at work, which was raised by the bees. She sees to it that there be no rivalry, by destroying all other cells.

By August our colonies are of rousing proportions with thousands of workers tearing in and out of the entrances as if "possessed," seeking nectar and pollen.

Toward the middle of August the golden-rod begins to bloom. In September the swamp myrtle is showing its pretty minute white blossoms on all sides, and in October the extractor is brought into play and the surplus made ready for the market. This honey granulates in from three to five months.

In handling surplus honey I have always made it a practice to deal directly with the consumer. I guarantee every drop of the honey sold, and frequently have customers who take from two to three gallons at a time and call for more later. Of recent years little comb honey has been produced in my apiary because of the swarming propensities thereby developed; but another year I shall be compelled to return in a measure to such production because of insistent demand for fancy comb products.

Savannah, Ga.

FEEDING BACK EXTRACTED HONEY FOR FINISHING SECTIONS

The Requirements for Success, such as the Question of Bees and Queen, Weather, Feeders, etc.

BY E. S. MILES

Now and then there is a beekeeper who reports success in feeding back; but perhaps the majority do not find that the plan works well at first. I myself was among the latter class; but having studied the theory of it thoroughly I was able to see some of the causes of failure, and after several trials was able to eliminate most of them, so that now I consider the finishing of some of the section honey by feeding back a part of the regular program each summer.

As there is a scarcity of section honey now, as compared with the supply of ex-



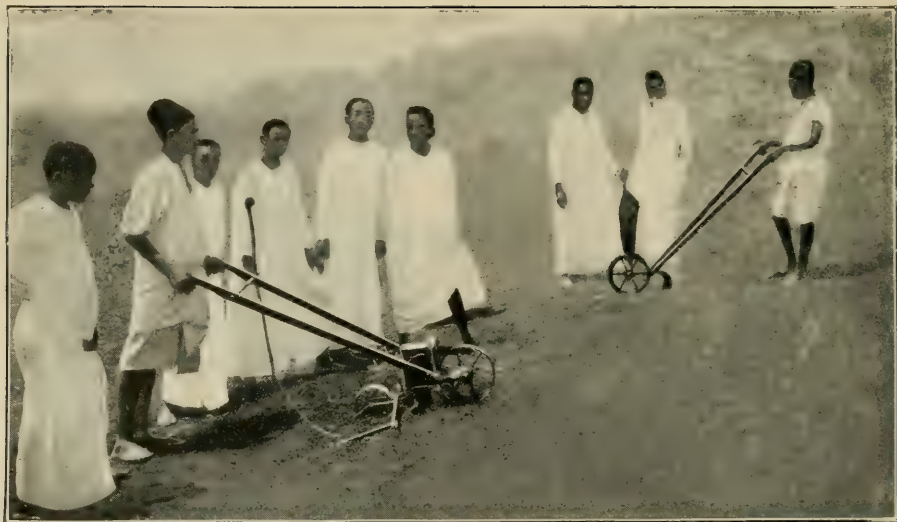
One of Scholl's shallow-story divisible-brood-chamber hives. A veritable stack of bulk comb honey.—See *Beekeeping in the Southwest*.

tracted, it would seem that every thing tending toward helping the producer of comb honey would be in order. As to whether it pays to feed back, I can not say positively. I think it has paid me, yet it might not pay another. It would depend upon how he is managing his bees, number of stands, how much his help costs, and what his time is worth in other work.

As to feeding for the purpose of getting sections finished, the following points in the order named as to importance must be considered.

1. Character of bees and condition of colony to be used.
2. Kind of weather to be expected for the purpose.
3. Arrangement of sections in supers; supers on hives; kind and arrangement of feeders.
4. Preparation of feed and method of feeding.

The right kind of bees is absolutely necessary as a foundation to success. As nearly as I can tell, a colony that does first-class work in sections in a honey flow will usually though not always be all right for this. I always try those that have been the best



The hot-weather costume in Uganda, Africa.—See A. I. Root's department

and quickest at finishing their sections; and if they prove good for feeding back I use the same colony each year until the queen begins to fail. I do not say black bees are the best, nor hybrids, although more suitable colonies may be found in a given number of these; neither do I say a good prolific queen will insure that colony being a good one for this purpose. My experience is that any colony that does good work in sections has a queen that keeps at least a reasonably good-sized brood. But on the other hand I have known some very prolific queens whose bees did not seal and finish their combs as quickly as others. So in working the colonies for section honey during the flow I watch for quick sealers.

It has been my experience too (but this may not be the same in all places) that the colonies fed are quite apt to swarm. As this should be avoided, I make it a point to select among the quick sealers those that have stood the greatest pressure without swarming. Luckily these two traits often seem to go together—those that are slow to swarm usually being good storsers and sealers. It is hardly necessary to add that, every thing else being right, the stronger these colonies are, the better. One does not want to use any more colonies than will finish the number of sections he expects to have, as each colony uses considerable honey before doing the best work in the sections; and the more sections one colony finishes, the greater the chance for profit.

This depends largely on the weather and length of time one has to continue the work, and his success in choosing the right kind of colonies for the work. My experience for

western Iowa is that the white-honey flow from clover and basswood usually stops about the middle of July, and heartsease begins to yield a little from the 10th to the 15th of August, so that I can count on about three weeks between flows in which to feed. I am doubtful whether it pays to feed during a flow. Mr. Alexander, whose opinion we all respect, said it did; but the one time I tried it, those colonies did not do as much in the supers as the ones not fed, and 75 per cent swarmed within a week or ten days after the feeding was started. One swallow, however, does not make a summer, we are told; so this experience might not always be repeated everywhere. In the two or three weeks' time between clover and heartsease I have usually gotten from 15 to 25 supers finished per colony. The right kind of weather is also necessary. But, fortunately, here in Iowa we usually have good weather for feeding at just the time needed. It is hardly necessary to say that it requires good hot weather with warm nights. The arrangement of supers and feeders is of importance, as the better these are, the more chance for success. I was never able to make much headway at feeding back until I began using the Alexander feeder. There may be others as good for this purpose, or even better; but I know the Alexander feeder is all right. I have some made of 2 x 6 stuff, and long enough for ten-frame hives, which I use on eight-frame hives, and I prefer two feeders on each hive. This gives capacity for a large feed, so that, if one does not feel able to take the time to feed any during the day, a feed each evening is equal to a good fair flow. When placing

the feeder, set your colony to one side, lay down one or two solid pieces of plank three or four feet long; put on the feeders and bottom-board where the hive stood; then replace the hive of bees, first driving them from the bottom of frames by smoking them so as not to mash any bees when setting on the end cleat of the bottom-board and partitions in feeders. The hive should also be blocked up $\frac{7}{8}$ inch at the front end for ventilation. If this blocking up leaves a crack between the first feeder and the hive, push a couple of small strips under it so that all will be tight around the feeders.

One must be careful to see that robbing does not get started; for while these strong colonies may not be robbed out, yet a big fight, and bad bees to handle, may result, as well as having the work hindered.

After the feeders are adjusted properly, put on two or three supers of sections, and in arranging the sections to go back put those which are the nearest finished on the outside of the supers. If there are as many as eight sections for each super all sealed on one side, put the sealed side to the outside of the outer row in each super. It is doubtful whether it pays to feed for any less than half built out. But those needing the most work must always go into the middle rows. The nicest work is on those just about built out but not sealed over. For securing the best results, those partly sealed should be uncapped. I think it is preferable to take off all sections a little sooner than usual where one feeds back, as it not only keeps the combs and sections freer from travel-stain and propolis, but it is not so necessary to uncap the sealed portion as it is after the flow has slackened when some combs are sealed light or thin. If feeding, or another flow starts, the parts unsealed will be "bulged," for the bees will build these unsealed parts out to the proper distance from the separators, even if it is only two or three rows of cells at the bottom or sides.

If, however, they are taken off as soon as the height of the flow is over, in most cases only the part built out will be sealed, so that, when the work is taken up again, it is more as it would have been if the flow had continued until the combs were finished. I think this is worth considering; for not only is it a puttering and difficult job to uncup sections, but these uncapped combs drip, and tempt robbers, and make more work for the bees, for a good part of this uncapped honey will be taken out of the combs as soon as the bees get a chance.

I do not like the common standard super for getting honey finished. I prefer a super $\frac{3}{4}$ inch wider than the standard width, so as

to allow a slatted separator to be tacked to the sides of the super, using $\frac{1}{2}$ or $\frac{5}{8}$ inch sticks behind it, thus giving a clustering space *outside* the outer row of sections in the super. These sticks are put one at one end of each section, thus using five sticks to each super. Then have the follower board perforated with $\frac{3}{8}$ -inch holes, or slots, so the bees in clustering behind the follower will also have access to the outside of the combs on that side. Such an arrangement is a great help in getting the outside rows built out, either during a flow or when feeding. There is no trouble in using such a super on a regular hive, as it projects only $\frac{3}{8}$ inch on each side; and any cover, unless, perhaps, a telescope, will cover it just as well.

The feed for finishing white honey must be white honey, of course; but it need not be ripe; in fact, it must be green, or else thinned to the consistence of green honey, and it should be fed as warm as can be used without killing bees.

When the flow is drawing to a close, if a colony has the supers about finished, instead of putting on another section super on top, as is usually recommended, put a shallow extracting-super on the brood-chamber and put the sections on top of an escape-board, and get them off; mass the unfinished into supers as described above, on quick sealers, and extract these shallow supers as fast as needed to feed the quick sealers. To one who has not tried it, it may be a surprise how much some colonies will put into a set of built combs after section work has about come to a standstill. I would recommend that the first few feeds be given at dusk, so as to avoid any danger of robbing; but after that, the bees become somewhat accustomed to it, and the feeder can be filled as fast as emptied all day. Use a good smoke in feeding, keep the bees out of the way so the feeders can be rapidly filled, and keep any robbers or stray bees away from the feeders while uncovered. The hives should stand level sidewise, so that the feeders will hold their full capacity; and they should not slope much toward the entrance, for the same reason.

As soon as wax secretion is well under way, as can be told by seeing that the lighter combs in the center are being built out, raise up the supers and put on two more. I always try to have five or six supers on after wax secretion is well under way, always having the nearest finished ones at the top, and one or two with plenty of storage room in them next to the brood-chamber.

If I have about all the supers necessary on, and still no super is all finished, I take

off one or two of those nearest finished, and either raise the others and put on more, or, in closing up, mass the unfinished from these on one or more of the best of the colonies fed; and as I finish up I drop the number of colonies used accordingly. I also taper off the feeding when there are no more partly built ones to put on. In putting back the last few supers of these fed sections that are nearly done, only a little feed comparatively is necessary in order to get them capped.

The last super to the hive will be likely to be a little travel-stained, as it must be finished next to the brood-nest. The others having been sealed one or more supers up from the brood-combs, and while new wax is plentiful, are very good, although not quite equal to those built and finished in a good steady flow. But I think that often what would otherwise have been No. 2 to culls, can, by this management, be made into No. 1. I find less honey in the brood-chamber after two or three weeks' feeding than one would expect where there is a good queen. At first, as in the beginning of a heavy natural flow, the brood-nest is chock full; but after the bees begin storing above, they seem to get their "second wind." The queen gets down to business, and the loose honey goes above.

I frequently find colonies with hardly winter stores in the brood-combs after two or three weeks of heavy feeding. But these colonies will be "powerful" strong, and must have attention so as not to swarm after the super room is taken away, especially if there is a little natural "picking."

Dunlap, Iowa.

THE VARIOUS PHASES OF THE SWARMING PROBLEM CONSIDERED

BY DR. C. C. MILLER

Continued from page 405

bees are thinking about swarming, make search for queen-cells in some of the strongest colonies. If no cells are found in these strongest, no need to go any further. If any are found, then it may be best to go through the whole apiary, destroying all eggs and larvæ found in queen-cells. Ten days later make the rounds again. Destroy, as before, all eggs and *young* larvæ in queen-cells. But if a colony is found with sealed cells, or cells containing larvæ well advanced, then the colony must be treated. If the queen be a good one that you wish to retain, take her with two frames of brood and bees, and with these form a nucleus, and kill all cells on the frames left. About ten days later, kill all cells again, and return the

queen with her two frames and bees. Leave a vacancy at one side of the hive while those two frames are absent—little danger that those queenless bees will build comb there. That colony may not make any further start toward swarming again, but it may; so you must examine every ten days, and treat it again if advanced larvæ are found in cells. I don't think I ever knew a colony to need more than the second treatment.

Suppose, however, you come to a colony needing treatment whose queen you do not care to continue. Remove the queen, kill all cells, and at the end of ten days again kill all cells and introduce a young laying queen. (Having young laying queens ready is an important part of the game.) If your young queen is in a nucleus with full-sized frames, a nice way to introduce her is to take her with two frames—more frames if she has them—as also the adhering bees, and put them in the queenless colony. That colony you may now call a "passer," for you will "pass" it at each examination without further attention for the season.

Some colonies will never get any further than to have eggs or small larvæ throughout the season, and, of course, they will need no treatment. Some may be found, especially if you have good stock, that will never have even an egg in a queen-cell throughout the season. These will be the ones likely to have record crops, and among these you should find your stock to breed from.

Marengo, Ill.

[In his article Dr. Miller refers to the shake-swarm method, assuming that our readers are familiar with it. As some of our newer readers and some beginners may not know just what it is, we here give it as it appears in the latest edition of the A B C and X Y Z of Bee Culture.

After the honey-flow has begun, and perhaps three or four days (not earlier) before the colony is expected to cast a swarm, the hive is moved to one side of the stand, and an empty one, just like it, is put in its place.* In this hive are placed frames having foundation starters or frames with full sheets—preferably the latter. But if neither is available, empty combs may be used. The bees of the parent colony are then shaken or brushed in front of the entrance of the *new* hive on the *old* stand. Some go so far as to brush *all* the bees out of the old hive; and this can be done if the weather is hot and the nights warm; for young hatching brood will soon be out to take care of the young brood. The supers from the parent hive are next put on the new one. The parent colony is then moved to a new location or left by the side of the new hive with its entrance

* Reports show that if the colony is shaken or brushed, from a week to ten days before a swarm would otherwise issue, no good will be accomplished, and that the bees will be likely to swarm. The shaking should not take place *before the bees feel and show the desire to swarm.*

facing in the same direction. In either case the entrance should be contracted.

If work is already partly begun in the super, the bees will continue work, and rush the honey above. In some cases it may be advisable to use perforated zinc between the super and brood-nest to keep the queen below.

It is encouraging to note that Dr. Miller still thinks favorably of the shake-swarm plan. Some years ago it was believed that this method was going to solve this much-mooted problem more fully, perhaps, than any thing else that has been proposed; but of late years we have not heard so much about it—not because we supposed it is not in use, but rather because it was so much discussed years ago that many users of the method think it unnecessary to keep harping about it. But it occurred to us that the shake-swarm method might be profitably discussed again—that is, as to whether it has been a success as it originally promised.

So far as we can see, Dr. Miller is entirely orthodox—that is, he has set forth the general principles governing the laws of swarming, and the beginner will do well to read very carefully what he has to say.—Ed.]

SOME SEASONABLE DONT'S TO THE OWNERS OF AUTO TRUCKS

BY ROBERT M'LEAN

Having noticed Mr. D. L. Woodward's article on auto truck for migratory beekeeping, Apr. 1, p. 213, I will give a few suggestions which may be of use to him.

Mr. Woodward speaks of his first season's experience being pleasant but quite expensive. Well, that is the case with most people in their first season's use, but with a large number the pleasant part is omitted. From the appearance of his car and the horsepower he must terribly overload it or the engine is not in the proper condition if he uses a gallon of gasoline for six miles. Usually with a car of 40 or 45 H. P., double the mileage he obtains from a gallon of gasoline is not considered any thing unusual. Although the care and condition of the engine goes a long way toward obtaining the proper mileage, there are numerous causes which would tend toward excessive consumption of fuel.

First, if the carburetor is not properly adjusted it will cause the engine to burn gasoline without getting good results, and would cause an excessive deposit of carbon in the cylinder.

Leaky piston rings or valves cause loss of compression, likewise a loss of gasoline vapor. The remedy is to use new piston rings or grinding in the valves.

If the spark is not kept well advanced while running, the consumption of fuel will be greater than when operating under an advanced spark. On some cars the throttle can be opened so the car goes about 15 miles per hour on retarded spark, and by advancing the spark the speed can be doubled without any increase in fuel consumption.

As a general rule, converted touring cars are not very successful when operated as trucks, because the owner usually thinks that a touring car having from 30 to 60 H. P. can carry a load on its chassis equal to a truck of the same power. Overloading is death to pneumatic tires—in fact, any tire, even a solid one, will not give satisfactory service when overloaded, and the same applies to the car as well as the tires.

From all appearances Mr. Woodward has an extremely heavy body on his car, which, when loaded, will account for some of his cost of operating and upkeep. A commercial body placed on a car should not be any heavier than the touring body it replaced, and better if not as heavy, if it can be built substantially enough without excessive weight.

It is not considered good practice to have the body overhang at the rear more than one-third of the total length of body, as it puts too great a weight on the rear wheels, resulting in excessive tire wear, which every one owning an automobile knows is expensive.

I think that, if a person secures a sturdy car of some good reliable make, and has convertible bodies, one for pleasure and another for commercial work, with a reasonable amount of care they can be operated more economically than a team of horses, considering the amount of work done and the larger territory it enables one to cover.

There is undoubtedly a great future for the light truck in the beekeepers' line of work in nearly all parts of the country. I have had considerable experience in the manufacture and repair of cars.

South Haven, Mich.

SPRING MANAGEMENT

Caution Regarding Early Manipulation

BY CHAS. H. CARGO

When I began beekeeping it was with a clear board—no designs of the art, good, bad, nor indifferent, clouded my views. I had no knowledge of either the box hive, Langstroth hive, Danzenbaker hive, nor any other hive. Viewing my assets in this light I discovered that this negative fact was of real value, as I was not called upon to part

with preconceived notions, and could listen to the pro and con of argument.

The best results in a practical way are obtained from methods which have been put into practice by the individual beekeeper himself, and with which he has gained experience, spelled with a rather large *ex* too.

The first thought in returning springtime is, "How are the bees?" Well, we must see. No, don't. In taking this first walk among the bees we will imagine a large sign ever hanging in front of us on which we see the words, "Bee Careful." The first visit may well be confined to changing bottoms for clean ones, and leveling up all the hives to a true level sidewise, and an examination of a few hives throughout the apiary only. An axiom comes in to explain this, and it is handy all the year—"Never disturb bees without brood." Bees without brood sometimes leave their hive; and in one case bees in an upper brood-chamber left their hive while it was set aside a few moments, and attempted to return to their regular entrance below, and were killed (some reason to be a wee bit careful). I believe the bees need to be stirred up to their work, but it is to be done gently. One season I found a hive being robbed. The robbers were trapped, and I thought it was just the thing; but, alas! I found later I had ruined another colony as well as the one robbed. Be sure you know the whole trick before going too far.

In a day or two we go to the yard again, and with more confidence if fair weather has intervened. Hives are now opened and brood-nests hastily examined and contracted wherever necessary, and the hives closed. The condition in which the bees are found is left penciled on the side of the hive. The season's work now swings out in full view before us, and the notes left on the hive become our chart to study and ponder over. What method shall be pursued, and what harvest is to be sought? Market conditions and flora both are to be considered. Early queens are to be raised or bought, and the extent of increase fixed.

Swarming is to be provided against by proper management, and bees must be watched closely to prevent heavy injury from orchard spraying. The National Beekeepers' Association should test out a case of intentional poisoning under our present laws against some blossom-sprayer, so as to define clearly the right to put out poison on blossoms, whether bees are known to be kept within a reasonable distance or not. No new law is needed to cover such cases, but a precedent ought to be established. I doubt if it is necessary even to prove that

any bees were killed. Proof of the spraying and its poison on the blossoms is usually sufficient. That is, prove that honeybees visit apple-blossoms, and that such blossoms were intentionally poisoned. How would a very small entrance do for the week of apple-spraying, to save brood?

Beginners should not treat their bees as so many treat their horses—turning them into a field but never looking over the fence to see if any grass is there. Examine your flora. Know it. Fill in the gaps as best you can. Even a very small flow is then of increased value. Raise any thing, or see that some one else raises it near you. Alsike clover, sweet clover, buckwheat, are standard. A small patch of sweet clover is of great worth to a whole apiary for a fall flow.

Bladen, Ohio.

ANOTHER UNSATISFACTORY EXPERIENCE AS A HELPER IN AN APIARY

BY B. H. VAN TRESS

On p. 58, Jan. 15, the editor thinks "Subscriber" was a little hard on the California beekeepers. I know that there are many perfect gentlemen among the beemen of California; but I also know that there are others just the reverse. I had an experience very much like the one described, and, in addition, I had a sick spell of two weeks caused by eating food not fit for human consumption. My employer then refused to pay me full wages for the little time I was able to work; and as I was among strangers I was obliged to take what he offered or nothing.

My advice to those looking for work of this kind is to make diligent inquiry first; and if the one looking for help does not answer fully it is better not to make the experiment at all. In the future I shall stipulate \$5.00 more, and traveling expenses one way, if the bargain is not lived up to strictly.

Greenleaf, Idaho.

[Undoubtedly there are unscrupulous beekeepers who will take advantage in every way of a helper; but there are plenty of good men who are anxious to get good help, and are willing to pay reasonably for it. It is a great education to a young man desiring to learn the bee business to work a season with different producers.

As a matter of business we advise having a full contract drawn up in writing, which should be signed by both parties. A lot of trouble? Yes, to be sure; but such a precaution might save ten times more trouble later on.

The following from J. G. Gilstrap shows the class of helpers that many ranchers have to depend upon in an emergency, and this condition, of course, influences the wage paid for help in general.—Ed.]

AN ANSWER TO "SUBSCRIBER," PAGE 58

BY J. G. GILSTRAP

We are glad that GLEANINGS conducts an "experience" meeting. "Subscriber" gives his experience in California. I have had nearly thirty-seven years "experience" in California, and about twenty-five of that has been devoted to apiculture. There is nothing strange nor startling about Subscriber's experience when one knows the conditions here. The climate here, warmer than exists in most of the States, induces thousands of the hobo class to come. They are usually found counting ties along the railroads or else in squads or bunches of half a dozen or a dozen at the hobo camps along the railroads cooking their mulligan stew in an old can. Not infrequently these pestiferous fellows have in their stew a chicken from the much-hated rancher's hen-house, together with potatoes and other edibles gathered at random from the fields, and that, with a chance loaf of bread begged from the good lady of the near-by farm, gives a feast for the "squad."

These hoboes may justly be classed into two lots—professionals and blanket men. The professionals have reduced the system to such a science that they rarely "sleep out." As a rule they are the smooth fellows who try to keep up a better appearance, and get a bed furnished if they can, in some bunk house about the large farms where many men are employed. They do not carry a bed except in the winter season, and sometimes not then. These professionals are divided into two classes—those who work part of the time, and those who never work.

Well, the blanket men are usually a better set to have around than the professionals, but the same danger exists in contact with either. I speak from sad experience. My friends, too, have often had the experience of having been stocked up with vermin (we always just call them lice or graybacks), from the hoboes. It has come to pass that here in California not one of them will be hired by any self-respecting apiarist or farmer except for a short time when an extreme emergency demands help.

The class of apiarists that Subscriber tells about working for, however, has a hard time generally in keeping or securing decent help, so they have to take what comes, and

too often it is dear help then even though the pay be only \$30 a month. I hope to see the day when the State law will regulate the premises of the beeman as thoroughly as does the present State dairy law the premises of the dairyman. Make them clean up, if they have not enough pride and self-respect to clean up themselves.

I have kept bees in several counties in this State, and have worked for a number of apiarists; and a cleaner, more refined lot of men I never met as a class than the California apiarists. Most of them are Christian men. Many apiarists pay \$1.50 per day and board when they hire help.

Ceres, Cal.

THE TREATMENT OF EMPLOYEES ON A BEE-RANCH.

I notice a communication, "The Other Side," Jan. 15, page 58, under the above caption. Will you please allow me to refute, at least in part, a portion of the statements made, and to give some facts on the other side? My brother and I run 800 colonies for The J. W. George Bee Co., and receive as wages \$65 a month each through the season (eight to ten months). We have access to a grocery store, and have every thing we wish to live on—good camps and rigs are furnished us to go to our outyards. Mr. George takes us to Sunday-school, and Mrs. George comes out and cleans up for us sometimes, and cooks us a nice dinner. I do not think good and worthy labor ever goes begging in California.

Imperial, Cal. THOMAS Y. ATCHLEY.

A Paper-hanger's Tools for the Apiary; Fountain Pen Filler for a Foundation Fastener

Being a paper-hanger by trade I have been using some of my paper-hanging tools to good advantage in my apiary. Among them is the clipped-point wall-scraper, three inches wide, which I use in scraping hives, bottom-boards, for prying, etc., the point being clipped in such a way as to reach in corners better than the regular scraper or putty-knife.

I also use my 16-inch smoothing-brush in brushing the bees off the combs, which takes them off at one sweep.

Another little tool I am using to advantage is a fountain-pen filler, or eye-dropper, as a wax tube. I have a can about two or three inches deep, the top being narrow enough to prevent the tube, when standing upright in the wax, from falling over. This can, about two-thirds full of wax, is placed over a lamp which can be kept at the proper temperature for flowing freely by regulating the blaze. By using a small tube of this kind I can do very neat work in fastening foundation.

I have read that some beekeepers are having trouble with the spur wire-imbedder weakening the foundation so that it breaks at the wire under the weight of the bees. I have overcome this trouble with my little wax tube, with which I can run so small a stream of wax down the crease over the wire, strengthening the foundation very materially.

Bedford, Iowa, May 17.

TOM PARKER.

Heads of Grain from Different Fields

What are the Difficulties in Shipping Bees without Combs?

Dr. C. C. Miller:—I want to buy a lot of queens with 1 to 3 lbs. of bees without combs of brood or frames, and put them in ten-frame hives with full sheets of foundation. Kindly advise me what I am to guard against in order to prevent its being a failure, for, buying bees on combs, I am liable to get foul brood. The A. I. Root Co. have shipped bees by the pound this past summer to test it, and have been successful. I will not have any drawn combs or brood—only foundation in full sheets in Hoffman frames.

Canastota, N. Y., Jan. 6.

WM. P. FRITZ.

[Dr. Miller replies:]

I had three separate shipments of this kind, and had difficulty in only one respect; so I know of only one thing to put you on your guard against. Otherwise a cage of bees shipped in this way may be treated exactly as a swarm. My one trouble was to get them out of the cage. The first lot that came was a beautiful sight to me, they looked so nice and comfortable. They had a pleasant look, too—a smiling look, you might say, as if saying to me, "Just see what a nice place we have here, snug as a bug in a rug; nothing better could be desired." "Yes," I replied, "that's a nice cage, but I can give you something better. I'm an old beekeeper, and I know all about bees. I'll soon have you out of that."

I put into an empty hive a brood-comb containing some honey, set the cage in the hive beside it with the opening of the cage directly facing the comb, covered up the hive and went away, leaving the bees to come out and cluster on the comb at their leisure. When I went back later in the day to take out the empty cage, there was no empty cage there. It was just as full of bees as ever. I began to think that may be I didn't know all about bees after all.

I'll tell you later how I managed to get them out; but first I want to tell you about the right way, as learned from Medina, to which place I applied for light as to the right way. It seems that they too had suffered under the delusion that I knew all about bees for they had sent no instructions as to getting out those bees. Promptly came back the response, "Shake them out, just as you would shake out any swarm!" Sure enough! how simple! Why hadn't I thought of that?

So I was ready when the next lot came. I opened the hole in the cage, and gave it a gentle shake. I didn't want to be too rough with those bees. But the shake was too gentle. The bees stayed right where they were. Then I shook harder, and a few bees were thrown out. To all further shaking the bees replied, "We're quite comfortable where we are, thank you," and stayed right where they were.

Then I set the cage on the top-bars, the opening of the cage at the bottom, and covered over the rest of the hive with little boards. I then blew a stream of smoke horizontally at the top of the cage, kept the smoke going steadily, and lowered it as the bees went down until the cage was empty.

You intend to put your bees upon foundation; but I think you will do well to borrow a frame of brood for the bees to go down upon, and then you can take away the brood as soon as the bees are out of the cage.

Marengo, Ill.

C. C. MILLER.

[Bees will shake out of a small cage because the filling-hole is relatively large to the size of the cage; but in the larger sizes this is not always practicable. A better way is to take off the wire cloth on one side, shake, and then lay that side of the cage over the set of combs or frames on which they are to be hived. If there is a frame of unsealed brood and honey it will be better. A frame of eggs and young

brood will "draw" as nothing else will. In a few hours all the bees ought to be out of the cage, and on the brood.—Ed.]

Golden Bees Hardy, Gentle, and Good Honey-Gatherers

After reading Mr. Snyder's article, Jan. 15, page 53, I felt like throwing my hat into the air, it did me so much good. I have noticed that our editor for some time has given the Goldenes the "black eye." I have felt like speaking out for Goldenes, but have been afraid to, for we little fellows can't make noise enough for any one to hear us, especially when "one of the largest honey-producers, and a queen-breeder as well," has the floor.

A few years ago I bought some red-clover queens, and then the season following a Golden queen. I kept them in the same yard and watched them carefully. I found the Goldenes as hardy, gentler, and better honey-gatherers than the three-banders. I remember well two three-banded queens and their bees. One queen and her bees were light in color for three-banders, and her bees were more gentle than the darker ones.

The darker bees swarmed out one day; and when I undertook to hive them they would sting. 'So I killed all my three-banded queens and used the Golden queen for a breeder. The Goldenes worked red clover just as well as the three-banders. After this I saw the queen-breeder that I bought my Golden queen from, and he told me that he had quit breeding the three-banders because he liked the Goldenes much better, and that they were better honey-gatherers, and more gentle.

By the way, I have two Swarthmore pedigreed Golden queens, and I intend to test them out; but I am afraid they will not have bees gentle enough for my little children to "grab out honey by handfuls." But one thing is sure, if they prove to be as cross as the three-banders I just told you about, I will pinch their heads.

Of the three leading types of beef cattle, two are bred for color as well as beef. The Aberdeen-Angus are black, the Herefords must have white faces, the Durham or shorthorns may be "off" in color. But what of these cattle at the international stock show, Chicago? The types that carried off most of the ribbons were bred for color as well as beef. Why not honey and color in bees as well as beef and color in cattle?

Naylor, Mo., Jan. 29.

R. O. MARLIN.

[GLEANINGS certainly does not wish to give any strain of bees the "black eye" if such is not warranted. We merely maintain, as we have explained before, that, while many individual colonies of Goldenes are hardy and gentle, the majority of them are below the average of the leather-colored Italians in these two points. Note the opinion expressed by G. A. Barbisch which follows; also that reported by E. G. Ward on another page.—Ed.]

Golden Bees Do Not Stand Cold Winters

I have been experimenting with golden Italians for the last five or six years, sending for queens from queen-breeders all over the country; but I am sorry to write that I have been disappointed with them in every instance. They can not stand the severe cold and backward springs we have up here in the North. If they do not die altogether they dwindle so that they are no good whatever in storing surplus. They are very backward in breeding up early in spring, and are much slower than the leather-colored Italians. They swarm about as much as any bees I ever had, and they are just as cross and irritable as any Italians I ever had in my yard. These Goldenes may be all right in the South; but

one thing is certain—they can not stand the cold and rigid weather of the North.

They are beautiful bees to look at, but that's about all there is in their favor. In nearly twenty years of beekeeping experience, and after trying nearly every strain of bees advertised I have found the pure leather-colored Italians ahead of all the rest—at least they are the best bees for this locality. The past season, when so many bees died, the Goldenes were the first to succumb; and while many of my Italians pulled through, not one of the Golden colonies did. In the future I shall have none other than the leather-colored.

La Crescent, Minn., Jan. 21. G. A. BARBISCH.

Hoffman Frames with Square End-bars; Some Relics of the Past

I like the Hoffman frames in every way except that mean V shoulder. It slips over the shoulder of the opposite square one. Why not make all the shank shoulders square?

The Langstroth hive is hard to beat, and the Italian bee has come to stay; but what about the hive that was going to do away with swarming? I think it was called the "reversible" hive. It was claimed to stimulate brood-rearing by turning it upside down; and if at any time you suspected a swarm was about to issue, all you had to do to forestall the swarm was to give it another turn upside down. I wish I had such a hive. I have been looking for it ever since.

Have queens mated in confinement been a success?

What was the outcome of the lamp nursery?

Slate River, Ont., Dec. 10. J. M. MUNRO.

[There has been some objection to the V edge of the end-bars of the Hoffman frame. The purpose of this was to cut the propolis, as the frames are crowded together. Some beekeepers wish the end-bar square on both sides, and we have made Hoffman frames in this way, although by far the greater majority prefer the V edge, for the reason stated. There is no question but that in localities where propolis is very bad the square edge end-bars are much harder to keep accurately spaced than the V edge.

Reversible hives and reversible frames have come and gone, and probably more will come and go in the future. There are some advantages to be gained by reversing the frames or reversing the whole brood-chamber; but in the end the extra expense of the equipment and of the labor required probably offset these advantages.

So far as we know, there are no experiments being conducted at the present time along the line of getting queens mated in confinement. The experiments that seem the nearest to success were those in which mammoth tents of wire cloth were used, but there were so many failures that the few successes did not pay for the expense of the undertaking.

The lamp queen nursery or incubator is likewise a thing of the past. There were possibilities, but it was found that bees can attend to work of this kind better than man aided by artificial heat, etc.—ED.]

Carniolans Not Immune to Disease, but Fully as Resistant to it as Italians

Nov. 15, page 744, H. Perkins, of Artesia, Cal., mentions the claim made by Eugene Baker, of Los Angeles, that Carniolans are more resistant to European foul brood than Italians, and asks that others having tried them give their experience.

I have been battling with European foul brood for two years, my apiary being located about half a mile from Mr. Baker's. When I first discovered the disease I purchased a few leather-colored Italian queens, and with cells from these I requeened my

apiary. By winter they were, to all appearances, free from disease. As most of my colonies were weak, and the following spring was cold and unfavorable, the disease broke out anew. Many colonies showed but an occasional bad cell; but I decided to treat all that showed any disease. Nearly all the queens were full-blooded Italian, but mated to black or dark hybrid drones.

As Mr. Baker seemed to be having better success with Carniolans I procured some eggs and larvae from his bees, and raised cells with which I requeened nearly all of my apiary. They cleaned up nicely, as they had done the previous season, but in like manner the disease reappeared later on. These queens were also mismated, no doubt, though it is difficult to tell from the appearance of the bees. As there are hundreds of colonies in other apiaries, and in houses and rocks near by, it is a difficult undertaking to cure disease permanently or to get queens of any race purely mated. On this account I ordered two dozen Carniolan queens from the same breeder from whom Mr. Baker gets his. These were placed in strong and apparently healthy nuclei. Two were lost in introducing; and in the remaining twenty-two disease appeared in six before fall. I also ordered two more Italian queens at the same time, and later two Caucasians. One of the Italian colonies became slightly diseased late in the summer, but the Caucasians have shown no disease so far.

In the fall of 1911 I had 100 colonies. While the most of these contained mismated Italian queens there were several purely mated, and also one colony of Banats. The queen was sent me for trial by the late Walter M. Parrish, of Lawrence, Kansas. That Banat colony is the only one of the hundred which has never shown a trace of disease up to the present time. I expect to try the Banats out further the coming season. Of the large number of diseased colonies which I have had during the past two years, in many cases it became necessary to unite several into one before treating by the Alexander method.

Most of those which became infected during the past summer and fall were taken in hand upon the first appearance of disease, and were cured by caging the queen for two or three weeks, or by placing the brood above an excluder. The latter plan, which I believe was first mentioned by Percy Orton, of Northampton, N. Y., I consider the best of any I have tried for mild cases, provided the colony is strong and already has a desirable queen. This plan will prove a success, however, only during a honey-flow, as at times when no nectar is coming in the bees will allow the dead larvae to remain in the cells week after week, making no attempt to remove them.

As to the disease-resisting powers of the two races, my experience would indicate that the Italians are superior to the native blacks, and that Carniolans are equal to and possibly somewhat superior to the Italians. They are, however, by no means immune. Carniolans build up for our late flow better than the Italians, and for that reason I intend to continue keeping them, unless, after further trial, one of the other dark races should prove superior.

Monrovia, Cal., Jan. 1.

LEVI J. RAY.

My Experience in Early Brood-rearing

I remember being located in a high cold part of northern Vermont where it was necessary to build up colonies quickly in order to keep up with the season. I used the old-style ten-frame Langstroth hive. The first day after taking the bees from the cellar I used to examine every colony; and as I did this I had an extra hive in which I had fitted a tight movable partition. I took out the comb with the most honey in it, putting this comb at the side of this extra hive. If this hive was to face the east I put this comb on the south side. Next I selected a good brood-comb with some honey in it, and scrapped the cappings of this honey with a common table

fork, this making small holes in the cappings. I placed the two combs with brood in them next to a good brood comb with more or less honey in it. I used to scrape all combs with the fork, as this caused the bees to remove the honey which would stimulate them in brood-rearing. I spaced these five combs as near together as I could and leave a bee-space between them. I moved up the partition as close as I could and leave a bee-space. I then used a stick just fitting the entrance, and long enough to reach half way across the hive. After providing a narrow honey-board I shook the remaining combs in front of this five-frame hive, taking these combs and the old hive to the honey-house for safe keeping.

I took a large basket to the barn and filled it with chaff from the barn floor. I filled the empty side of this hive with chaff. I next took some old four-inch boards and made a frame or rim the exact size of the cap. I put this frame in place of the cap, and filled this extension level full of chaff, covering the honey-board three or four inches deep with chaff. I then placed the cap over all, and contracted the entrance to about one inch. I did this with all strong colonies, using fewer combs for the weaker ones. The hive being thus warm, the bees went to the field in large numbers, and were able to push breeding to the utmost.

I let them alone for about ten days. I then took the big basket, and with my hands removed most of the chaff, so I could move the partition. I always found the comb next to the partition filled with eggs and larvae, also the center combs well filled with brood. I took another comb from the store hive and scraped the cappings with the fork and placed this comb next to the partition, and covered all again with the chaff. I made all additions of comb to this warm side of the hive. I had to make these additions every few days. When I got the hive nearly full of combs I removed all the chaff and the partition, filling the hive with comb. I had to work fast to keep ahead of the bees, as they would get the swarming fever. There was work in this, but it paid.

I recollect having a lot of nuclei; and when a swarm came off I hived it with a nucleus; and after removing the cells from the old stock I returned the old queen. In about three weeks she would lead out another swarm. I have thus had three prime swarms from a single old colony, and a surplus besides.

Lyndon, Vt., Feb. 26. H. E. HARRINGTON.

Prospective Co-operative Beekeepers' Association in New Zealand

The chief drawback to our industry here is want of organization; but there is hope that this will be rectified shortly. A movement is on foot to establish a co-operative association in Canterbury, and if enough support is forthcoming a company will be formed in time for next season's crop. A Dominion association may be formed eventually, something on the lines of the National Association in America. A committee was appointed at last conference held in Wellington last August, and the members have been collecting information. This committee will submit a scheme at the next conference, and there is every prospect that a workable scheme will be evolved. Promises of support have been received from many of the leading beekeepers who intend to be present when the next conference is held. Prizes this season are low, probably on account of the crop being so much above the average. It is hoped that an export trade will be established; and if this is done, the local market will be relieved. A comprehensive scheme of advertising is contemplated in connection with the above, as honey is not as extensively used as it deserves to be.

Christchurch, N. Z.

E. G. WARD.

The Help of Bee Experts Wanted

I wish to suggest a possible opening in the way of what ought to be a good business. I keep bees because I must. My business demands it, yet it is impossible for me to give them necessary care or to look after treatment should brood diseases get among them. All through the country are farmer beekeepers who do not know how to work their bees. If a man were to come to me two or three times a season, certified as competent and trustworthy by a recognized authority, say the secretary of the National Association, or the State Inspector, I would gladly pay him three dollars for a day's work, or the work necessary, on my few stands. Perhaps I could better afford to pay five dollars than to let him pass on. So could others, though perhaps they would not.

It is possible that a bee expert could not develop a business at itinerant work; but I wish there were one whose territory would include my place. It would, of course, be absolutely essential that such a one be thoroughly grounded in the scientific knowledge of brood diseases, and competent to use the best methods, and exercise all the precautions necessary in treating and handling diseased colonies.

Carthage, Mo., Jan. 20. BENJAMIN C. AUTEN.

[Possibly some such plan could be worked out; but it occurs to us that in most parts of the country the traveling expense would be almost prohibitive.—Ed.]

Wire Cloth in Connection with the Alexander Plan for Making Increase

I wish to add one improvement on the Alexander plan of prevention of swarming as given on page 314, May 1. When the change is made with the queen in the new hive, and the excluder on, put a wire screen on the excluder, and then set on the hive body containing brood. Then shake most of the bees in front of the new hive. What are left will care for the brood, and the heat will pass from the colony below, and will be saved. This makes the colony shaken the same as a natural swarm—no brood to care for, and it forces twice as many bees into the field.

In eight days remove the screen and cut out all queen-cells. The upper colony or hive body containing brood should be given a small entrance in front when the cage is first made. I have tried the plan a number of times without the screen, but in almost every case too many bees would go above with the brood. This discourages the queen so that in a few cases she stops laying. The plan is not a success without the screen unless with an extra populous colony or with very warm weather.

Simi, Cal., May 19.

GEO. W. RICH.

A Lining for the Firebox of a Smoker

I have made a "discovery," or learned something, whichever way your old friends care to put it. Cut a piece of galvanized iron or good heavy tin as long as the circumference inside, and as wide as the depth of the fire-box on your smoker. Bend it into a hollow cylinder, and slip it into the fire-box. I have used a smoker thus for nearly a year, which had burned through before I put it in. If put in when the smoker is new it will certainly double the smoker's usefulness.

San Juan, Porto Rico, May 1. F. E. HARTWELL.

Alfalfa Does Well at High Altitude

On page 272, April 15, is an inquiry from J. W. Hontz, of Portales, N. M., regarding alfalfa at high altitudes. I am in the far-famed San Luis Valley, which is 50 miles wide by 100 miles long. The altitude is 7500 feet. Alfalfa does well, and the bees also do as well as I have ever seen anywhere.

WM. J. BAKER, M. D.

Monte Vista, Cal., May 21.

Our Homes

A. I. ROOT

And God said, Behold, I have given you every herb yielding seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed: to you it shall be for meat.—GEN. 1:29.

In all they ways acknowledge him, and he shall direct thy paths.—PROV. 3:6.

Behold the birds of heaven, that they sow not, neither do they reap, nor gather into barns; and yet your heavenly Father feedeth them. Are ye not of much more value than they?—MATT. 6:26.

My good friends, I have made another "great discovery." While it is not exactly new, I am sure it is absolutely true. The greatest part of my discoveries are, as a rule, *not* exactly new; but they are new to me, and wonderfully precious, for I feel that they come straight from the hand of the great loving Father. Years ago, when my good friend Terry said so much about simple eating, uncooked food, etc., I took a trip over to his place expressly to partake of one meal just as he recommends and practices. Some of you will remember I told you about it in these pages. My digestion was a little out of order on that day, and I did not know whether his "menu" would agree with me or not. Terry and his wife, who were living by themselves, have only two meals a day. I think the first one is about eight o'clock, and the other about two in the afternoon. When I arrived there at the usual dinner time, and was told that the hygienic spread was for myself alone, I begged that it should be simply uncooked food just as Terry writes about, and *nothing else*. Well, just now I remember only three things on the table—rolled wheat, uncooked; evaporated peaches, uncooked, soaked in cold water; and butter. Friend Terry figured up the cost; and although I had a good square satisfying meal, the cost was only 6 cents. The wheat cost perhaps one cent, or a little more; the butter, one cent; but the peaches were so delicious, and I enjoyed them so much, that I ate about *four cents' worth*, and I do not know that I ever had a more satisfying meal, and, somewhat to my surprise, my digestion after it was perfect, with no disagreeable taste in my mouth afterward, *at all*. I do not remember what I had to drink; but I rather think it was some of Terry's beautiful cool filtered rain water; or it might have been roasted-wheat coffee; but I rather think it was just water.

Now, the reason I go into these details is as follows: Most of you know that my last meal for the day, say about five o'clock, consists only of apples—good ripe ones. In Florida I take a fair-sized grapefruit with my apples. I have tried mulberries, and,

in fact, almost all kinds of berries and fruit as a substitute for apples, but none of them seem to answer as well. After I got back from Florida I happened to go into the grocery where we get our supplies, and there I saw a case just opened of beautiful evaporated California peaches. The peaches were, of course, dried with the skins on. They were unusually large, and looked so tempting that I took a pound of them. One of my happy surprises was that they were only ten cents. As they were fancy stock I thought the price would be a good deal more. Well, remembering my experience at friend Terry's years ago, I told Mrs. Root to soak them in water and not stew them at all. At the end of 24 hours I cut one of the great luscious halves in two, and put the quarter of a peach in my mouth. I at once uttered an exclamation of surprise. I believe it was not only the most delicious peach, but the most delicious food of *any* sort I ever tasted. You may remember I said something in the same strain about that baked dasheen. Now, I do not know whether those peaches *were* something extra, or whether I had somewhat neglected to give uncooked peaches the attention they deserve. I remember that, after my experience at Terry's, we bought some ordinary peaches and soaked them, but I did not think very much of them. These peaches were not only uncooked, but no sugar was added. They were plenty sweet; but it was the sweetness that *God*, through the influence of the California sunshine, put into them. I asked Mrs. Root if she had tasted them. She said she had not, but she drank some of the water they were soaked in. By the way, I think she put about one pound of peaches to a quart of water. At her suggestion I poured some of the water (or "juice") into a teacup, and took a drink. Well, if the taste of the peach was a happy surprise, the peach juice, or, if you choose to call it so, peach cider, was a greater surprise. It certainly was the most delicious fruit drink, or drink of any kind, I ever tasted.* It did

*By the way, once or twice every summer, and several times in the winter, at my Florida home, I have taken a glass of soda at the soda-fountains just to see what they have that entices so many men, women, and children to spend their nickels in this way; and I have several times thought that perhaps the "high cost of living" was brought about largely by the nickels deposited at the soda-fountains. Who pays for this expensive apparatus to be seen in most of our drugstores that dispense ice cream and soda? It is the nickels; and if you watch the crowds as they take their various sodas, you will find a lot of children, and perhaps grown-up people, who look as if they did not have any nickels to spare. I may say the same in regard to coca-cola and Hires' root beer. Now, if the present generation demands some such drinks, usually called "fruit juices," for

not seem possible that a pound of peaches should diffuse its natural juices through that whole quart of water so as to make it so delicious and nourishing.*

That book, "Starving America," has a lot to say about uncooked food, or the food eaten just as God and the bright sunshine and the summer showers made it. With these dried peaches, of course we get every bit of the skin or peeling, fuzzy down and all. After eating these soaked peaches with my apples for a couple of weeks past I feel there is a special element in the peach skins and juice that nature demands. It furnishes those mineral salts about which the author of that book has so much to say.

Our first text tells us how God planned in the beginning to give our bodies the nourishment they need. You will notice the special mention of the *fruit* of the tree, and that "to you it shall be for meat." Not only did God intend fruit should be not only a large part of our daily food, but he meant that we should take it and eat it *just as he gave it*—peelings and all, the way the animals eat it. In other words, the expensive and wasteful fashion of throwing away one of the most important parts of our daily food is a great blunder. The water the peaches are soaked in contains a large part of the nourishing property of the peach. In the same way, the water in which your potatoes are soaked over night is rich and nourishing, containing mineral salts besides the starch, etc. The water the potatoes are *boiled* in is still more valuable. I know the women folks and the cook make objections; but by studying God's laws, and following

instance, remember that book, "Starving America," tells us the greater part of the ice-cream sodas have no fruit juice at all—only an imitation made mostly from the products or residue of our oil-refineries. Well, now, if such drinks are really *needed*, why not have fruit juice from the evaporated peaches instead of having them rot by the hundreds of tons? If you think I am mistaken, soak some evaporated peaches for 24 hours in pure cold water, and see if the drink is not ahead of any thing at the fountains. And this pure fruit-juice is straight from the hand of the loving Father.

* These peaches I am talking about were evidently very ripe when first spread out to be evaporated. Some of them, and I should say most of them, were probably soft and mushy; and I remember years ago in childhood of drying peaches out in the sun that were so soft that we just squeezed the stones out. On page 385 of our last issue, J. A. Green tells us of *hundreds of tons* of the finest peaches grown in the world rotted on the ground last August in Colorado. Now, if I am correct, evaporated peaches, where the work is properly done, can be kept safely year after year; and by soaking them in water according to Terry's plan you can have them *every day* in the year, almost as good, if not quite, as they were when picked from the trees. May God be praised for the beautiful peaches that are now produced, and for the improved methods of preserving them by evaporating so as to lose little or none of the deliciousness or healthfulness; and may God hasten the time when shorter cuts and less expensive cuts may be made from producer to consumer. How about "parcel post" for disposing of those "hundreds of tons" (in the shape of evaporated peaches) that were left to rot?

out the plans he has laid down, I should not be surprised if Terry and I would be alive, and well and happy, long after a lot of you who think you must follow *fashion* in eating (as well as in dress) are dead and gone. In fact, Terry and I can even now, when we are in our 70's, look around and see *hundreds* who were born some time after we were, that have died—"worn out," so the world says.

Let us now touch a little on the second of our texts—"In all thy ways acknowledge him, and he shall direct thy paths." God will direct us all as to what we shall eat and how we shall live, just as well as in spiritual matters, if we "acknowledge him" and confess that his wisdom is greater than ours, and learn to take the food he has provided as he gave it, straight "from the producer to the consumer." We shall not only live long, but we shall be well and happy.

Of course, we can not eat *every* thing uncooked—that is, we can not very well at the present time; but as Terry and the author of that other book say emphatically, we should endeavor to have a *large part* of our every-day food uncooked. Let God's *sunshine* do the cooking. You may remember there is quite a nice book out now already entitled "Sun-cooked Food."

In the matter of drink, God sends the needed water in most localities straight down from the clouds—you might say straight down from heaven, and say it truthfully; but as it is inconvenient to get it straight from the clouds, especially when it does not rain, the duty devolves on us of *keeping* rain water. Now, in order to be sure that the water I drink is pure and wholesome, I drink only boiled rain water. I do not care very much about having it cold or very cold—so it is pure and clean, free from all vegetable matter, especially during hot weather. I have repeatedly drank water right from the cistern, say for a couple of weeks, and watched its effects. Then I would take the same water and have it boiled, and (of course) cooled off. I have not used *hot* water of late unless I eat something I ought not to eat, or overeat. Then a good big drink of hot water until it starts a good perspiration seems to be beneficial. I usually drink half a cupful of milk at my meals. Milk, like fruit, is the food God provided and intended for us, especially the little ones. Great pains is now being taken, I think, almost *all over the world*, to have the milk as well as eggs fresh and pure. Why, it is just "fun to live" when you are following God's plans, and when you let him direct and advise.

Sometimes it sounds extravagant to hear

Terry keep insisting that correct living will cure you, no matter *what* the trouble is; but the longer I live, the more I am convinced he is right. Of course, we are all liable to accidents; and in such a case or at such a time we need the advice and skill of our expert physicians and surgeons. May God be praised for what has been accomplished, and is now being accomplished more and more every day in the line of intelligent surgery.

I suppose it will not be out of place to suggest in this talk that, aside from uncooked food and pure water to drink, we need to keep our bodies clean. Every inch of my body is washed with pure soft water, and well rubbed till dry, every day of my life, and I enjoy it, and would not think of taking up my tasks without it.

One thing more: Almost every day of my life I work at something until the perspiration starts through almost every pore of my skin, and until I feel tired enough to sit down at my desk. Last, but not least, I take a short nap before my noonday meals so that I rarely ever sit down at any meal exhausted or tired out. Of course, when I get up in the morning, and have my breakfast between five and six, I am in good trim because of my restful sleep; and this reminds me that when one gets his *digestion* in proper trim, as God intended it should be by the use of wholesome food, and not too much of it, there is almost no trouble about sleeping. When I have a large lot of books and papers that I feel as if I *must* glance over, at least hastily, I take another nap in the evening before going to my task, and then go to bed about ten o'clock; then I go to sleep instantly, and do not remember any thing or know any thing until toward five o'clock next morning.

Now for my concluding text. The dear Savior reminds us that God cares for the fowls of the air. Although they do not reap nor gather into barns, yet our heavenly Father feeds them. He tells them by instinct where and how to get proper and wholesome food. Then he asks the question, "Are not *we*, the crowning act of his creation, of more *consequence* than the birds of the air?" If he makes provision for them, has he not, in his infinite wisdom and loving kindness, also made provision for us? Did he intend we should be sick and ailing as so many are? *Should* we be ailing if we used the common sense he has implanted in us all, in studying out what his plans are?

As warm weather comes on, and I begin to protest against the fashionable way of clothing, I meet with remonstrance; and I am told that we must, at least to a reasonable extent, look like other people. Peter

said, you will remember, in olden time, that we should obey God rather than man; and when fashion conflicts with health, I for one propose, at least to a certain extent, being *out* of fashion. The fowls of the air live out of doors; and I am sure God intended we should be out of doors at least a great part of our time. When any thing takes us indoors and keeps us at least a good many hours of the day under the influence of artificial heat, and without a great abundance of outdoor air, we have no right to expect to gain the blessings of health. People are committing suicide; in fact, the suicide mania is increasing if any thing; and I feel sure a lot commit suicide because they are disregarding God's laws.

There is not so much complaint, just now, about people being out of work. Everybody—good, bad, and indifferent, has a chance to work if he wants to; and I am sure it was God's plan that we should be busy, using our muscles and brains during all our working hours. I picked up a health journal a few hours ago, and read of a man who rushed into a doctor's office, and told the doctor he would give him fifty dollars, a hundred dollars, or even one thousand dollars, if he would make him well. At the same time this man's breath was reeking with the fumes of whisky and tobacco, and his face gave abundant evidence of excesses of every sort. When the doctor assured him there was no permanent help or hope unless he would leave off *all* of his bad habits, he got into a rage, and declared that if this particular doctor could not *give* him something he would hunt up a doctor who would. There is no help for such people along the line of God's plans. "Whatsoever a man soweth, that shall he also reap."

THE JAPANESE PROBLEM.

Quite likely I am too poorly posted to pass an opinion on the matter in question; but notwithstanding I wish to have a little say in regard to the matter. We are sending missionaries at great expense all over the world wherever there is sinful and suffering humanity; and although the great business world for a considerable time did not seem to recognize the importance of missionary enterprises, I am glad to say that within a few years or so things have changed. The skeptics and agnostics, and the business part of humanity (that has been so greedy for gold) just now are recognizing what the missionaries are doing to develop and civilize the uttermost parts of the earth. For a long time heathen nations held aloof, and could not be induced even to take notice of what the missionary

had to present. A little later, however, the current changed and began to go the other way; and these very heathen, both saints and sinners, began flocking to our shores in such numbers that there is talk about putting a stop to it; and while our United States is composed so largely of all tribes and colors of humanity it becomes a little difficult for those of us who are "born Yankees" to dictate for the rest of our people. Well, now, contrast the difference not only in expense but in the facility with which we can convert our *next-door neighbors*, compared with, for instance, the inhabitants of the islands of the sea on the other side of the globe. Ought we not rather to *rejoice* at the opportunity it affords us to spread the gospel among people of all nations who are sprinkled like salt throughout our whole domain in "the land of the free and the home of the brave?"

Ten years ago or more Mrs. Root and I paid a visit to some friends in San Francisco. They had a Japanese cook; and the lady of the house said he took *entire charge* of the dinner; and every one of us could testify that it was gotten up in fine style. The cooking was superb in every particular; and this young "Jap," as spry as a cat, did the whole of the work. So far as I can gather from the papers, the people of California object to the Japanese because they not only work *cheaper*, but are *better skilled* in housework and ever so many other things. California does not want them, because they stand in the way of—well, I should say of "bigger wages and shorter hours." I have been wondering what our good women folks who are obliged to employ hired help have to say in regard to the matter. Lots of industries are being abandoned (and this includes even the "chicken business") because faithful and skilled help costs so much. I would by all means put a stop to Japanese men coming over here for a little while, leaving their families in Japan. If I am correct, Arizona cuts off the Japanese unless they bring their *wives and children*, and become naturalized. There seems to be some good sense in such a course. It rejoices my heart to see that the *American Issue* for May 17 indorses my sentiment, at least to a great degree. Read the following:

CALIFORNIA AND THE JAPS.

In California 334 Japanese farmers are provoking the soil into growing things for the common good.

These Japs beat the world in intensive farming. They are sober, tremendously industrious, and have the science of raising much crop from a wee bit of land reduced to a science.

They bathe every day, and eat fresh vegetables, nuts, and fruit instead of beefsteak at 28 cts. a pound.

The American farmers are beaten at their own game, and call upon the legislature to help them out

by eliminating the Japs from the farming industry.

It is suggested that these 334 Jap farmers embark in the saloon business. Let them embark in the business of skinning the poor of their wages, the business of getting people drunk, and sending them home to beat their wives and pound their children.

Let these Jap farmers embark in the business of filling the stomachs of the city poor with forty-rod lightning instead of cabbages and potatoes. Let them embark in the business of debauching California citizenship, in the business of breaking up California homes, sending California boys to prison, and the girls to hell.

The California legislature won't kick on this, provided the Japs deliver over a portion of the profits in the form of license money.

If the little Japs will engage in the business of raising Hades instead of potatoes, all of these international complications will have been abated.

Now, dear friends, shall we not extend a hand of welcome to any sort of humanity, white, black, or *yellow*, if they come over here and become one of us, obey our laws, and bring their wives and children?

MISSIONARY WORK IN BARBADOS.

We have been fondly congratulating ourselves that cannibalism was about wiped off the face of the earth, and that the gospel of Jesus Christ had so thoroughly penetrated every remote spot that in the near future starvation, and cruelty of every sort, would soon be done away with as they are here in America, at least as a general rule. Below is a letter, however, from Barbadoes that should stir up not only America but the whole wide world. I am glad our good friend Hutchinson has taken the pains to inform us of such terrible things; and I hope this printed letter may be the means of awakening all mankind to what is still going on in some remote parts of the globe.

Dear Mr. Root:—At the close of another year I have to return your firm my hearty thanks for their kindness in sending me GLEANINGS for the previous 12 months. An equal debt of thanks is due to you, as senior partner, and with a preponderating vote in the counsels of the firm. It is a great pleasure to be able to render such thanks, as GLEANINGS has always a special welcome in my house; and your steady fight for righteousness is always of great interest.

During the year we have been interested in this island in the Putumago atrocities, as many of our people were at work in that region. What attracted public gaze to it, was, a man settled here, married, opened a hotel, which he gave somewhere, north or south, the doubtful compliment of naming after it. But Peru telegraphed here to arrest this proprietor of "The America," and the allegations made at his trial were something awful. Beating individual Indians to death was only pleasurable compared with other horrors. On one occasion he tied up 20 Indians, and flogged them. Then from morning to evening they were kept tied up under his house. In the evening he brought them out again, flogged more flesh off their bones, then laid them out on the ground, poured kerosene oil over them, covered them with wood, and set them on fire. That fend in human form actually got off through the indifference of the Peruvian government!

W. G. HUTCHINSON.

St. Joseph Rectory, Barbados, Dec. 23.

Poultry Department

SITTING HENS, AND HOW TO MANAGE THEM.

There is an article by our good friend Stoddard in the *American Poultry Journal* that is worth ten dollars to me. I have read it over three times, and I am going to read it again. The article certainly ought to be worth the subscription price of the journal to *any one* interested in poultry. If you do not subscribe right out for a year, send for the June number at least, and read Stoddard's two articles in that issue. I know friend Stoddard is getting to be an old man like myself; and I have criticised him somewhat in times past on account of the complicated machinery he recommends. But notwithstanding all this, I believe our old friend has studied chickens more than any other writer who is living and making "things hustle" in chicken matters at the present day. The article that I have read with so much interest is on the value of poultry inventions, and is particularly about sitting hens. See the following extract:

I would a hundred times rather invent something that will aid in producing food for generations to come than create the advanced types of monstrosities in fowls and pigeons that have appeared in England for a century past all put together, were it possible for one person to do this.

A while ago I published in this magazine a description of what I named the "duplicate system" of yards for management of sitting hens, which method pleased me so much that I felt like jumping over a two-story house. I thought it was not capable of improvement. It has worked like a charm with me and saved endless labor and vexation of spirit; and had my sitters been of a better breed, with more uniformity of disposition, it would have worked still better. To find the very best breed for sitting purposes, in the sub-tropics, is a consummation devoutly to be wished. Climate is evidently not just right for heavy breeds.

I kept calling on poultrymen for years and years to invent good methods of taking care of hens engaged in sitting, but my appeals were largely in vain. In all, volumes of diatribes against mother hens have been written, though they are among objects most worthy of admiration found in the entire realm of animal life below the human race. "As a hen gathereth her chickens under her wings" suggests a picture than which there can be no finer in nature in the eyes of her true votaries.

The latest depreciation of the use of sitting birds I have seen is in the April issue of the *Poultry Advocate*, from a writer who gives a very valuable article, and is in part as follows:

"As the nests were attended to, the hens fed and watered, there were broken eggs discovered. This called for fresh nest-filling, washing of the eggs that remained whole, and sometimes the getting of a fresh sitter. One of the hard things in hatching with hens is the bowel trouble that comes from feeding injured corn to them. . . . More hens soil their nests, more chicks die of bowel trouble, from musty corn, than all other causes. If in any doubt as to the corn—and you can not get other—bake it in the kitchen oven till the color of it is slightly darkened. Then cool and keep in dry box till needed."

The baking advice is excellent; but this writer has missed the most general cause of bowel trouble. It occurs from lack of exercise in twenty cases to

one of musty corn. Sitters closely confined are afflicted as described time and time again, while their flock mates not engaged in sitting, but of the same age and breed, and fed on the same corn exactly, are exempt.

Study the actions of a sitter off her nest of her own will, with plenty of room to run and get up full speed, and fly to the fence top, or upon some other elevated object, and down again, and bustle around generally, and hunt up her flock for a short visit, and race back near her nest, then scamper away again. Once I thought these antics were merely manifestations of delight at respite from the irksome restraint of sitting, but now I know better. They are fraught with deep meaning like many other habits of animals. Probably hens which steal their nests do not have bowel trouble and foul their nests in one case in a thousand. I will warrant not a reader of this magazine ever knew of such a case.

TRIALS AND TRIBULATIONS.

Our writer's other vexations are familiar to readers. Hens do not return to their proper nests, for instance. The hen which steals her nest makes no such mistake. Her brain is loaded to the limit with thoughts about her nest, and her previous nest. She spent lots of time considering the matter in the first place, and compared various localities before she laid an egg. All her actions proceed like clockwork if she is not "taken off by hand" and "put back," and stirred up and confused generally. The more she is handled and made anxious about her nest, the worse she behaves. Even if she is quite a tame specimen, and not nervous on ordinary occasions, she is excited when the sitting fever is on. The love for her eggs is almost as strong as love for actual chicks, and all the fine program of nature is disarranged by a "brain storm."

What if some way could be contrived by which sitters could be let severely alone after eggs were assigned, all the time till hatching begins, just as if they had stolen their nests! Eureka! All fussing not only menaces success and vexes the poultryman, but takes up so much time as to mean good-by to profits.

Contrive some way of letting sitters alone, and they will regularly air and turn their eggs and carry out the whole of nature's exquisite program just as the one which steals her nest does.

You perhaps gather from the above that both writers refer to an arrangement for confining the sitting hen to a little yard or yards. Let me digress enough to say that it is virtually the same thing we frequently see advertised—the "natural-hen incubator, for only \$3.00." I have shown it up again and again in years past; but still the advertisements are seen in a great part of our poultry journals. Briefly, the man has no incubator to sell at \$3.00 or any other price, and he never had one. All he has to sell is a single sheet of paper—price \$1.00; and if you do not buy immediately he will come down to 50 cents and then to 25, for his wonderful sheet of paper. He just tells how to give each sitting hen a little doorway where she can eat and drink and take a little exercise. Now, friend Stoddard's plan as described in the June number of the *American Poultry Journal* is to make these yards a good deal longer. They may be three feet wide or less, and as long as

your ground will admit—the longer the better. Friend Stoddard recommends letting sitting hens severely alone. Instead of annoying them and getting them out of temper by human intervention, he lets the great God who made them do all the managing, or, in other words, he lets them follow out their own wonderful instinct. Let me digress a little right here:

Along about the first of April, in our Florida home, Wesley announced that a Leghorn hen had just come out of the brush with a fine brood of chickens. We went down, picked up the hen, gathered up her fifteen chicks, and put them in a coop. She behaved so nicely that I began to think she was a jewel of a mother. By some mishap, however, one of the chicks got out of the box just as we thought every thing was all right for the night; and when I tried to catch the chick her motherly instincts all at once were aroused. She got out of the box, and I had one of the biggest fights I ever had with a sitting hen. We finally got her put back, and I kept her several days shut in a coop. Finally I decided to let her go out for exercise. Her first performance was to dig the mulch away from the fruit-trees in our dooryard, sending the dried Bermuda grass "sky high" in her search for crickets for her brood of fifteen. When we "shooed" her out if the dooryard she got over into the cornfield; and when the chicks were a week old, she and they had been pretty much all over the premises. The fences of the convergent poultry-yard were no obstacles to her at all. In fact, her daily plan of getting over one particularly high fence was to fly up to a limb on a pine tree, twenty feet or more from the ground. She would fly right straight up and alight on that limb, and, after resting a while, sail down or "glide" as the flying-machine men do. The chicks were very soon following her everywhere. They did not need any feeding nor any thing else, apparently, for God's earth was fruitful enough and broad enough to give them all things needed. By the way, is there not here a lesson for poor humanity? If the fathers and mothers of our land had the grip and faith in their own muscles, and the ability to see what God has spread out before us, I do not think there would be much complaint about "the high cost of living."

Well, when we came away Mrs. Root declared that this particular hen would have to be sold with the rest of the two-year-old layers. The chicks were then about three weeks old; but they had become so independent that they did not seem to mind the loss of their mother at all. They were the last to get home at night so I could shut

them up, and about the first to get out in the morning. Now, Providence permitting, I am going to raise a strain of chickens from these fifteen, even if they do defy fences and every other obstruction. I take it the little family is *still* unbroken. See the following letter.

Mrs. A. I. Root:—Wesley came last Saturday, the 10th, dug the Irish potatoes, and sold the best of them and put the rest into the barrel in the cellar, and covered them with dry sand and put wire screen over to keep rats out. He dressed out the dasheens, and sprayed the chicken-house with kerosene to kill the mites. My dasheen looks very well, but rain would do them good. The fifteen little chicks seem to be doing well. They come over to see us every day and gather whatever bugs they can find. There is nothing they can harm, and we like to have them catch the bugs.

Bradentown, Fla., May 19. C. L. HARRISON.

FRIEND STODDARD'S LATEST INVENTION.

You will notice in the above extract he has been studying on some plan of letting a sitting hen remain right on the nest where she first wanted to sit. She is not only to have a nest all to herself, but she is to have liberty to go off and fly on top of the fences or even on top of the barn if she chooses, and come back when she is ready. Come to think of it, however, she can not fly up on top of the barn, for this long narrow yard is to be covered overhead with poultry-netting or a few boards to give shade, say over the nest-box. Now for his plan for accomplishing all this or letting the poultry themselves accomplish it: The hens that lay the eggs to be used for hatching are in one yard. Adjoining this yard are the poultry-nests, each one having a runway, as I have explained. Of course we use nests enough (each with its little yard) so as to have one for each of the sitting hens, more or less. Each nest has a little door. If you close all but one, and there are no other available nests in the yard, or connected with it, your flock of probably 12 or 25 will all lay in that nest. If the nest is a good-sized one, shaded and ventilated, and at the same time darkened and secluded, a dozen hens may lay their eggs in it during the day.

There is one nest in my yard that the hens all seem to prefer, and several times I have found eleven eggs in that nest. By the way, down in Florida hens frequently begin to lay between six and seven o'clock in the morning, and quite often there are more or less eggs laid as late as four o'clock or even later. It seems to be a natural instinct on the part of the hens to lay where there is a nestful. You may recall the fact that I could not get the hens to lay in my newly planned nest until I put three or four eggs, *just laid*, in that nest. After that, they would lay there right along. Well, after the whole 12 or 25 have got a

fashion of laying in this one nest, especially if you have chosen a breed of sitters, pretty soon you will find there will be a hen that tries to sit on the eggs all night, and will fight if you try to put her off. Do not get her off. Do not annoy nor trouble her. Shut up that little door and open the one further along. As the pens are exactly alike, your flock of layers will never know the difference; and as soon as another hen wants to sit, shut her in and open the other doors, and so on till you have as many sitting hens as you want. If you have some choice eggs, put them in, say, after dark, disturbing her as little as possible. The nests, you will notice, are near the door where the fowls go in to lay. At the opposite end of these narrow yards you have some corn, dripping water, shells and grit, and the dust baths—that is, if the ground is not already suitable for a dust bath. If you want a diagram of the whole arrangement, send for that June number of the *American Poultry Journal*, 542 South Dearborn St., Chicago.

Whatsoever a man soweth, that shall he also reap.
—GAL. 6:7.

FORTY CARLOADS OF POULTRY IN NEW YORK CITY WAITING ON THE STRIKE.

The particulars of the above I find in the *Cincinnati Packer* for May 24. The only reason why I give it place in our Poultry Department is that the New York buyers claim that these carloads of poultry were made very hungry, and then all at once given all the corn and *sand* they would eat. The buyer registers three specific complaints: First, that poultry is starved on its way from the West, then is overfed with

sand and corn just before arriving in Jersey City, the extra weight of sand in the crops increasing the weight fully 15 per cent, which is a total loss to the buyer, and they (the buyers) have finally made a kick against that way of "doing business." Now, I do not know how true this is; but it seems to me almost incredible that it is possible to feed chickens *sand* until it represents fifteen per cent of their weight. Of course, this would mean *live weight*. But it is true that every man who is even a party to that kind of business should "reap" what is justly due him. If such is really the case, they had better get our good friend Billy Sunday to hold some meetings among the chicken men, and preach on the text that "honesty is the best policy." In fact, it is the only policy that will succeed in business year after year, and win heaven in the end.

"Wherefore do ye spend money for that which is not bread? and your labor for that which satisfieth not?"

Some time ago I read of a lot of poultry in California that seemed to be so unusually heavy that the buyer opened several, and found a lot of bullets had been pushed down their throats—probably after the fowls had been killed. Some of us have been congratulating ourselves that the people who work out in the open air, or, say, the "honest old farmer" and those who raise chickens and keep bees, are more honest than the city dwellers—middlemen, for instance. By the way, I wonder if it is true that *beekeepers*, any of them, are trying to work in "sand and leaden bullets" until their crops of *honey* are "podded out." God forbid.

High-pressure Gardening

SWEET CORN—A CHOICE STRAIN; HOW TO TREAT THE SEED TO KEEP OFF GRUBS, CROWS, ETC.

Some years ago a reader of *GLEANINGS* sent us some sweet corn that we folks at Rootville decided was ahead of any thing else we had ever gotten hold of. Well, we finally lost the seed, but the friend who sent it was kind enough to send us some more that got here just at planting time. Here is what he says about it:

The corn I sent you is the Gilmore. Some years ago I sent you some of it, and you said it was the best corn you ever saw. It is a cross between a sweet corn and the Tuscarora as host. Not a thing will touch grain or plant. Since 1847 I have prepared corn thus: For one peck of seed, immerse for a minute or less in hot or boiling water; drain, and immediately add two tablespoonfuls of pine tar. Stir briskly until every grain is coated with tar. Then add lime to dry and prevent sticking together. Please publish this; for if farmers practice it, and

have good seed they will always have a good crop. It will add millions to the country.

Frank, Pa.

MOSES GILMORE.

THE WAY THEY TEACH "HIGH-PRESSURE" GARDENING ON THE GROUNDS OF MENGU HIGH SCHOOL, UGANDA, AFRICA.
SEE PAGE 416.

Shortly after my talk about simplicity in dress, in our issue for May 1, I noticed a picture in the Planet Jr. catalog, and the proprietors of these celebrated hand cultivators have kindly loaned me the cut. I think I mentioned once that, while in Florida during July and August, I used to go out in the garden and sometimes work quite a spell in my night dress. As the poultry are all shut up tight during the night in order to let them out at the "peep of dawn" I was not only *obliged* to be up quite a spell

before the rest of the neighborhood, but I rather enjoyed it; and I remember thinking what a pity it was that folks could not go about all day in night dresses—that is, when the temperature is up to 80 or 85; and it also occurred to me that many of us would accomplish very much more if we were unhampered by fashion and clothing we do not need. We do not *know* at present just

how much better off we should be. I can not tell exactly, by looking at the picture; but my impression is that some of the pupils(?) are well along in years. My good friends who run hand cultivators out in the fields, would it not be a luxury to be permitted to dress like that chap holding the cultivator on the right hand of the picture?

Temperance

ANOTHER STRAW WHICH SHOWS WHICH WAY
THE WIND IS BLOWING; SALOONS BAN-
ISHED FROM THE PANAMA CANAL ZONE.

We clip the following from the *Union Signal*:

A SALOONLESS ZONE; NO SALOON LICENSES TO BE
ISSUED IN THE CANAL ZONE AFTER JULY 1, 1913.
BY ABBIE B. HILLERMAN,

*National W. C. T. U. Representative
in Canal Zone.*

At a meeting of the Isthmian Canal Commissioners held April 24, 1913, the following resolution was adopted: "Resolved, That no license for the sale of intoxicating liquors in the Canal Zone be granted by the Commission for any period beginning on or after July 1, 1913." During the present fiscal year there were five Canal Zone settlements where saloons were permitted; namely, New Gatune, Gorgona, Matachin, Empire, and Culebra. Thirty-eight licenses were granted in these places last year. The proximity of Empire to Camp Otis made it advisable to stop granting licenses there, and the same reason applies to Culebra, according to the *Canal Record*, another argument against the canteen in the army.

The highest number of licenses issued at any time was sixty-three in 1908 and 1909. At the present time there are thirty-five. A license fee of \$100 per month was required; and for the period of six years during the operation of this system the sum of \$326,200 has been received from this source by the government, represented by the Isthmian Canal Commissioners. This only shows the financial side. The toll of blighted manhood and ruined characters which has been collected by the rum traffic is appalling. Three great American breweries are there.

We are thankful that there will be one exception at least to the statement that "The American saloon follows the American flag." With the eyes of the world centered upon this strip of land which is so soon to be the great ocean highway of nations, this action is most opportune. We believe that the thousands of pages of temperance literature sent to this section by the National W. C. T. U., together with the influence of temperance sentiment at home, has had some part in this victory. It is certainly in harmony with the views and actions of the President of the United States and his cabinet.

May the Lord be praised for the above. And it is my impression that the W. C. T. U. has had much to do with bringing about this happy result; and thank the Lord, also, for a President whose life and character are in harmony with the above.

The crowning engineering achievement of the world can not afford to be handicapped just at its completion by the presence of the saloon business and the liquor-traffic.

THE MILLENNIUM COMING THROUGH OUR
GREAT RAILWAYS.

May be the above heading is pretty strong; but our great railway companies are at least having something to do with it. See page 234 of our issue for May 1. Then read the following letter.

Mr. A. I. Root:—In the May 1st issue of GLEANINGS you quote a letter issued by a railroad claim agent to their employees, and ask some one to send you the name of the road. I am glad to say this letter was sent out by Mr. C. W. Egan, claim agent for the B. & O. R. R., Baltimore, Md. The B. & O., besides being the first road in this country, was the first to issue an order forbidding their employees drinking intoxicating liquors or frequenting places where they are sold, either while on or off duty. I am glad to see most of the railroads are requiring the same from their employees now.

I have been employed by this company for about fifteen years as telegraph operator, and am located at present near the historic town of Harper's Ferry, W. Va. I enjoy your Home talks very much, and hope you may live to keep up the good work for many more years.

Keller, W. V., May 29.

W. F. ANDES.

Hurrah for the B. & O. Railway Co.!
"Long may they wave"!

CIGARETTES AND CONTAGIOUS DISEASES.

We clip the following from the *South Dakota Farmer*:

Agents of the New York Factory Inspection Commission have made the discovery that many thousands of high-grade cigarettes are made in tenement houses among which contagious diseases are found. The woman of the house employs odd moments between housework and caring for sick children in rolling these "coffin nails," licking them with her tongue to hold the paper together.

This disclosure may not suggest any thing to the youth and their elders who smoke cigarettes, but it ought to.

And once more let me ask why the Health Commission of the United States, while waging war on pernicious and habit-forming drugs, does not turn its attention (and guns) toward cigarettes and the whole cigarette business. Is there not reason for it aside from what is referred to in the above clipping. Making idiots of our boys is perhaps even worse than sending them to their coffins through contagion.

Gleanings in Bee Culture

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Editorial

IN a note just received from our California correspondent, Mr. P. C. Chadwick, we learn that the Governor failed to approve the new foul-brood law, so the long fight that the California beekeepers have been going through must be fought over again in all probability. Further particulars will be given in our July 15th issue.

OUR COVER PICTURE.

APPROPRIATE to the general subject of this special number is our cover picture showing a lot of fancy and No. 1 sections. At first sight one would be inclined to call some of these No. 2's, judging from the photograph; but it must be remembered that a picture always shows comb honey worse than it really is.

HONEY-CROP CONDITIONS; CLOVER ABUNDANT AND INDICATIONS POINT TO A RECORD-BREAKING YIELD FROM IT.

REPORTS in general would indicate that this has been the greatest year for clover honey we have had for many years; but the frosty weather along in May and early June nipped the clovers in spots. Drouth has likewise checked the flow in localities in Illinois and New York. The reports of an excellent flow are particularly numerous from Ohio, and very good from Indiana, Michigan, and Pennsylvania; and in West Virginia and Tennessee the reports are from good to bad. In some localities the drouth that threatened to stop the flow of nectar altogether has been relieved by heavy rains. Good reports come from Southwest Texas, from Missouri, particularly in the Ozark region. Reports are fair from Iowa, and in the New England States the yield has been fair to excellent. In New York it was feared the flow would be a failure from drouth; but later reports indicate that the drouth has been broken, and that there is some prospect of honey yet. Reports as yet are meager from Minnesota and Wisconsin. Similarly we have heard but little

from the alfalfa irrigated regions. There is nothing to indicate, however, that the season will be below normal. Reports from California indicate that the season has been poor all over that State, with one exception, and that is from Santa Barbara Co.

Just now it appears as if this were going to be a great clover year. It is too early yet to make a positive statement; but conditions now seem to indicate that there will be a record yield from clover.

HONEY PRODUCTION AT THE MEDINA APIARIES

THESE are busy days at our Medina yard. There has been a remarkable bloom of clover, and it is still on this 25th day of June. Indeed, we do not remember a time when clover seemed to have yielded by the tubfuls as it does this season, unless it was the year when A. I. Root secured his enormous yield of extracted honey in the early 70's. It was at that time that he was proposing to build a big cistern of 100 barrels capacity for the storage of his extracted honey. He borrowed all wash-boilers and tubs in that section of the town, and had them all full. Perhaps this dream of his early days was a little wild; but it will be remembered he was only a novice then, and he continued to be Novice for several years, writing under that *nom de plume* for the old *American Bee Journal*.

So heavy has been the honey-flow that Mr. Pritchard has complained that the bees would actually clean out his grafting-cups and fill them with honey. Some one facetiously remarked that if a few tin cups could be passed around in some of the supers the bees would fill them with honey. Great scheme!

Swarming has been going on at a furious rate. Our auto truck with our gang of four men has been kept busy going back and forth putting on supers, the men shinning up trees after swarms. Even the editorial force has been called into the field. On more than one occasion the editor could have been seen up in a tree chasing after a swarm.

At one of our yards Mr. Pritchard and ouself found that cell-builders seemed bent on making us a lot of trouble. You know that cell-builders have to be kept up to a high state of prosperity. The colonies have to be extraordinarily strong; and when honey is coming in at a furious rate, and bees building cells, is it any wonder that they swarm?

At the present time it is very dry in our locality, but not dry enough to prevent a copious flow of honey; but unless we can get a good soaking rain, our crop will be cut square in two.

We hope to have some photos a little later that will show the operations here at Medina of the automobile truck in action. Say! that motor truck is proving to be all that we wished for it. It practically puts all of our eight yards together where our men can take care of them, and yet at the same time it allows us the advantage of immense fields for honey production. In this connection some of our yards have had a soaking rain, while the others, near our home yard, remained high and dry. That, again, shows the wisdom of scattering our yards. More anon.

DEATH OF ANOTHER PIONEER BEEKEEPER; A
STRENUOUS ADVOCATE OF HAVING ALL
THE CELLS SEALED BEFORE EX-
TRACTING.

OUR old friend Dan White, of New London, Ohio, died June 2. He was known to the beekeeping world as perhaps one of the most strenuous advocates of bee-ripened extracted honey. He wrote a number of articles denouncing the policy of extracting before *all* the cells are sealed. Especially did he condemn the plan of extracting before the honey is ripe and finishing the ripening in open vats.

He built up a fine local trade for his extracted honey. It was so good, he said, that he had no trouble in disposing of all he could produce, as his old customers would continue to call for it year after year, knowing it had quality.

Our friend had a unique personality. He had a strong rugged appearance and an honest face. His plan of selling was to go around to a town and give away samples of his extracted honey, saying he was not selling any thing that day. Then he would hand out a blank postal card with his name and address on it, and say to them, "If you want any of this good honey, put your name and address on this card, and when I come with my delivery wagon I will bring what you want." The next day he would get a string of postal cards that would call for

a wagonload of honey. He never had to drum up that trade any more, because the quality of the goods was his traveling salesman.

This method of selling, which has proved to be so effective on the part of others, will be advocated by the A B C and X Y Z of Bee Culture as long as we have control of it; and Mr. White's short and convincing letter in connection therewith will continue also.

THE CONVENTION AT AMHERST, MASS.

THERE was held at Amherst, Mass., on the 11th and 12th of June, immediately following the close of the apicultural school-work under Dr. Gates, a convention which in point of valuable, helpful discussion, was the equal of any meeting, National or State, we have ever attended. There were students from other States as well as Massachusetts. There were also beekeepers of prominence as well as scientific men from the college who took part on the program. Dr. Gates showed that he is a master in getting up a program, and if he has any thing to do with preparing the official program for the next convention of the National, the members of that organization may rest assured that the convention will be well worth attending.

It will be almost impossible, in the limited space at our disposal, to give any thing like an adequate and complete report of the Amherst meeting; and all we will attempt to do will be to refer briefly to some points brought out by only a few of the speakers.

We should, perhaps, state in advance that the discussions that took place in one of the college class-rooms were followed up by actual demonstrations at the college apiary and in the college bee and extracting house. The students were, therefore, able not only to take in the theoretical but the practical side of the industry at one and the same meeting. And this reminds us that more of our conventions should have more practical work—in other words, there should be facilities provided whereby the various speakers can illustrate their addresses by the things themselves. There is nothing like showing the actual operation: and we are of the opinion that those who attended the Amherst meeting came away with a very clear conception of the methods and things described.

BEEES ALMOST THE ONLY AGENCY FOR POLLIN-
ATING FRUIT-TREES.

We arrived a little late for the first session, but in time to hear the address of Prof. F. A. Waugh, of the Massachusetts Agricultural College, on the pollination of

fruits. In this connection it may be well to mention that Prof. Waugh is a national authority on fruit-growing. He is the author of a practical work on the American apple-orchard,* and also a producer of fruit himself. The readers of the A B C and X Y Z of Bee Culture will remember a quotation from him on the subject of spraying fruit-trees, and his caution against applying such sprays when the trees are in bloom. We asked Prof. Waugh to give us his complete address at some future time; but at this time we may state that he gave some conclusive evidence showing that the honeybee was the principal and almost the only agent in the pollination of fruit-trees. He referred to the claim to the effect that there are other agencies than bees for doing this work, principally among which is the wind. He had taken pieces of glass, coated them with vaseline, and secured them on the windward side of fruit-trees in full bloom, at a distance that would be about equal to another tree that is supposed to receive wind pollination. He found that these glass plates, smeared as they were with grease, received almost no pollen dust, even when the wind blew through the trees in full bloom in the direction of the plates. He further stated that there are practically no insects except bees that are flying when fruit-trees are in bloom, and that nearly all the cross-pollination that is effected at all is through the agency of the bees. There are some varieties, he said, that are self pollinating; but even these varieties have more and better fruit when bees are present.

Prof. Waugh's address was all the more convincing and conclusive from the fact that he said he was a not a beekeeper, never had been one, and never expected to be. His statement is especially valuable when we remember he is regarded as one of the greatest authorities on fruit culture in the United States.

ONTARIO A GREAT PROVINCE FOR BEES.

On the evening of June 11, Mr. Morley Pettit, general instructor in apicultural work at the Ontario Agricultural College, gave an exceptionally interesting stereopticon address on the subject of Ontario bee culture. His views were unusually instructive. At the close of his address it was apparent that Ontario, Canada, would rank with any State in the Union, if it did not surpass it, in the number of its extensive honey-producers and in the amount of honey annually produced. The conditions in Ontario seem to be exceptionally favorable—so much so that it is extremely doubtful

whether any State in the Union, not even excepting Texas, Colorado, Nevada, or California, can equal it. "And yet," said Mr. Pettit, "not all the available bee territory in the Province is taken up." He referred to some spots in the northern part where the seasons are necessarily short, but where the crops are good. The average Yankee could not help wishing, perhaps, that Ontario were a part of the United States.

FONDANT OR THE NEW BEE CANDY FOR QUEEN-CAGES.

On the morning of the second day Mr. O. F. Fuller, of Blackstone, Mass., gave an address on the subject entitled "Experiments with Bee Foods." Mr. Fuller has for several years past been experimenting with a soft candy that he has made use of as a substitute for the candy now made with honey in our queen-cages. Under present government regulations all honey used in candy must be thoroughly boiled to kill any possible disease germs that may be present. Mr. Fuller has been working on the proposition that it is better to have a candy that uses *no honey*. He presented a letter from the Postoffice Department showing that such a candy will be accepted and welcomed.

The candy Mr. Fuller has been experimenting with is technically known by candy-makers as "fondant." A formula that he has been using with considerable success is, granulated sugar 12 lbs.; glucose, such as the makers of candy use (not the commercial article known as karo or corn syrup), 1½ lbs., water 1¼ quarts, and from one-fourth to one-third of a teaspoonful of cream of tartar. The cream tartar, water, and glucose are put together; and as soon as they begin to boil, the sugar is added. The mixture is then stirred until it reaches the boiling-point, when it is discontinued. As soon as it reaches a temperature of 238 or 240 by a sugar-boiling thermometer made on purpose for the candy-maker, it is then removed from the stove to cool. While the ordinary stirring is discontinued at the boiling-point, Mr. Fuller stirs the mixture just enough and no more after that point is reached to keep the temperature about as uniform as possible. But a general stirring should be avoided. When the candy cools to 120 or 125, it is stirred or beaten until it begins to "cream." As soon as it looks like paste or starch it is ready to turn into the feeders. These are nothing more nor less than little wooden trays with glass slides at the bottom. These are filled with soft candy, and when cold are laid glass side up directly over the cluster of bees as a winter food. He has fed a number of colonies with this food, and found that

* Published by the Orange Judd Co., of New York, at \$1.00.

they wintered perfectly. He has also used it with a great deal of success in queen-cages, and has found that it keeps soft and moist. However, he emphasizes the importance of keeping the candy in a closed vessel, and then taking out a supply as occasion requires. When the candy is placed over a cluster of bees it will necessarily keep moist on account of the natural moisture from the cluster. Dr. Gates brought out the point that the cooking temperature will be somewhat dependent on the day. The greater the degree of humidity, the higher will be the temperature. In a dry atmosphere 236 F. will be high enough, and 238 F. on a moist day. There was a candy-maker present whose name I failed to get, who insisted that cream tartar is not necessary. On this point Mr. Fuller could not say positively; but the candy-maker said that if the candy was too moist it could be stiffened up with a little powdered sugar.

In the following discussion Mr. Fuller stated that 1 lb. of grape sugar equals 1½ lbs. of liquid glucose. In other words, 12 lbs. of granulated sugar to one of grape sugar would make a fondant.

Mr. Fuller referred to the criticism that has been raised over the use of glucose; but he argued that the amount of glucose used is very small in comparison with the amount of granulated sugar. He made the point clear, however, that he did not use glucose because of its cheapness, but because it was the best thing he had ever tried for making a soft candy that would remain soft for months.

FIELD-DAY EXTRACTING.

In the afternoon of the second day there were demonstrations in extracting with a hand-power and a large power extractor and honey-pump, uncapping with a steam-heated knife, and melting the cappings in a capping-melter. To witness these operations the members of the convention passed into the convention in single file and out as each demonstration was made.

SHIPPING BEES IN COMBLESS PACKAGES.

There had been shipped to Dr. Gates sample packages of bees without combs. The bees were on exhibition, and, later on, places in the hives, some on unsealed brood and some on frames of foundation. Dr. Gates is in sympathy with any plan for shipping bees over the country that will eliminate bee disease by the omission of comb. He gave an address on that subject at one of the sessions, which we did not hear.

A NEW OBSERVATORY HIVE.

Mr. Geo. T. Whitten, of the Hartford School of Horticulture, exhibited an obser-

vatory hive that will admit of the examination of any single comb without opening the hive. This looks like an impossibility; but seeing is believing. This will be a great hive to use at schools and colleges and by timid people who would like to watch the bees work without opening the hive. We hope to have an illustration of this in an early issue of GLEANINGS.

THE OLD "LONG IDEA" HIVE REVIVED.

Mr. A. W. Yates, one of the State deputy inspectors, of Hartford, Conn., exhibited a double-walled hive with a capacity, all in one story, of something like 25 frames. It involves the principles of the old Long Idea hive of forty years ago that was so much exploited at the time, but which was finally abandoned. Mr. O. O. Poppleton, of Stuart, Florida, however, continues to use it. As Mr. Poppleton is regarded as one of the best beekeepers in the United States, the "Long Idea" did not wholly die. Mr. Yates argued that his hive, built on that principle, required very little care. In fact, it can be managed on the let-alone principle more nearly than any other hive with which he is acquainted. He thinks that enormous crops of honey could be secured, and at the same time keep down swarming by the system of manipulation of a queen-excluder. We have asked him to illustrate and describe this method in GLEANINGS at some future time.

SOIL FOR GROWING CLOVERS.

One of the addresses that was listened to was one by Prof. W. P. Brooks on the subject of increasing clovers and honey-plants. Prof. Brooks is one of the acknowledged authorities on soils. He explained that clovers will grow anywhere if they get the soil food right. But many soils are deficient in lime; and when lime is supplied, clovers will grow profusely.

A notable feature of the Amherst meeting was a large exhibit room where supplies from many of the manufacturers were on display. There were also to be seen old hives of ancient pattern, curios, and various articles of ingenious and odd invention. This room was well occupied in the between sessions. There was something doing, therefore, at this meeting almost from morning till night.

We respectfully suggest that President Gates arrange for a field meet of the National Beekeepers' Association at some convenient date at Amherst. It has a most complete equipment, and if Dr. Gates should be authorized to get up a field meet at the college it would go down in apicultural history as one of the great conventions in the history of the Association.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

MR. EDITOR, that's a fine write-up of foul-brood legislation, p. 362. Now take up spraying, and handle it the same way some of these days.

ARE there any scales constructed for the apiary, or will any platform-scales stand the weather? [There are no scales specially constructed for the apiary; but practically all the standard instruments all of metal would stand exposure to the weather. As a general proposition scales on the gravity or steelyard principle are not as suitable for outside exposure as a platform spring scale with an enclosed dial.—Ed.]

G. M. DOOLITTLE, you've painted the swarming business very fairly, p. 367, but one thing needs to be added. It looks very pretty on paper to have a swarm with a clipped queen obliged to return and hive itself; only in a large apiary, when swarms issue simultaneously or in close succession, there are entirely too many cases where the swarm, instead of returning to its own hive, heeds the call of a returning or lately returned swarm at some other hive.

D. L. WOODWARD seems to think, p. 213, that the out-apiarist who has an auto should have horses as well. I wonder how many agree with him. [We do not believe it is necessary to own a team. That would be too expensive. But an automobile truck can do a great part of the work. The few times that a team would be required would be more economically handled by a livery. Something, of course, would depend on the roads.—Ed.]

M. R. PINCOT says, *L'Apiculteur*, 160, that brood-comb is never less than 24 millimeters (.945 inch) in thickness. The common thing here is to say it is $\frac{7}{8}$, or .875 inch. That's a difference of more than 1-16 inch. Mr. Editor, please tell us the exact measurement at Medina. [Some years ago we made some quite extensive measurements in our apiary, and the average of all measurements was as near $\frac{7}{8}$ of an inch for worker comb as it was possible to make it.—Ed.]

WESLEY FOSTER seems a little shy as to admitting that it is the proper thing to compensate a beekeeper for his loss from foul brood, p. 365. I don't wonder. Certainly it would never do to allow full compensation so long as there are men who burn down their houses to get the insurance. Indeed, there may well be question whether there should be any compensation at all, unless a man is hit so hard that he becomes

a public charge. If smallpox breaks out in my home I don't get any compensation; and why should I any more if disease breaks out in my apiary?

OTTO DENG, *Deutsche Bzcht.*, 23, gives some interesting figures regarding the development of a vigorous colony. At intervals of ten days, at 10 A. M. he counted the number of bees returning from the field during the space of ten minutes, also how many of them carried pollen. April 1, in ten minutes he counted 318 returning bees; and of these, 94 carried loads of pollen. The other counts were these:

April 10, there were 476 bees, 142 with pollen. April 20, there were 584 bees, 268 with pollen. May 1, there were 782 bees, 281 with pollen. May 10, there were 1045 bees, 367 with pollen. May 20, there were 1462 bees, 418 with pollen. June 1, there were 2364 bees, 624 with pollen. June 5 (twelve days after first drones flew) a swarm of 8 lbs. 6 oz. issued. The per cent of bees carrying pollen at the different dates was respectively as follows: 29.6, 29.8, 45.9, 35.9, 35.1, 28.6, 26.4.

MORE and more beekeepers are getting to think bees should not be left with a space of half an inch, or even an inch, between bottom-bars and hive-floor. I first adopted a bottom-board two inches deep because I wanted the deep space in winter. But in summer bees would build down in so deep a space, so I put in a shallow box upside down to fill up the space in summer. Then I improved on that by using in summer an open rack. Now comes the Junge-Peirce team, p. 308, with a deeper space and with open sides, which ought to be an improvement, as giving still more air. Leon C. Wheeler comes next, p. 314, with exactly my bottom-board, only he has ventilation at sides and back, and has no bottom-rack. The question is, Do the bees never build down in that two-inch space? Leon, if they don't, your bottom-board is a big thing. J. P. Blunk has a deep bottom-board, open at back as well as front; and, if I mistake not, bees never build down in it. In whatever shape it is given, the deep space under bottom-bars is an important factor in helping to prevent the desire to swarm. [We arise here to inquire whether your first sentence states the facts. We would have said, basing the opinion on the correspondence that has passed through our hands, that more and more beekeepers are beginning to accept the deep space under the frames as better than a shallow space.—Ed.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Just now (June 5) we are having a dearth of honey, and a very severe drouth which is checking the clover badly. As blossoms are just beginning to show, naturally we are earnestly hoping for a soaking rain, without which we can not expect to get a crop of honey.

Later.—The rain came.

* * *

Dr. Miller, I want some more light on that first Straw of yours on page 140, March 1. You say that Dr. Phillips "is trying to learn what instruction to give the bees for best wintering in cellars." Please tell him for me that some beekeepers who have cellars too warm, or defective in some other way, would like to know how to "instruct" the bees to keep quiet when they get too noisy.

* * *

In June Notes I said, "The season for fruit bloom is one of the earliest on record;" but now with May just ended I must revise that and say that it was one of the latest as well. Why this paradox? Simply because, just after writing that note in early May, the weather turned cool and stayed cool all through the month. Apple-blossoms were open for three weeks, while last year they lasted but three days. Little nectar was gathered through all this period, however, owing to the chilly weather; but whenever it warmed up a bit, honey came in rapidly.

* * *

Commenting on the fact that we got 600 pounds of honey when melting those cappings that yielded 350 pounds of wax, page 379, June 1, the editor expresses surprise that there was so much honey to that quantity of "drained cappings." Perhaps it would be better to qualify the statement where I say the cappings "were pretty well drained" when the evidence points otherwise. At the east yard they had but one uncapping-box, and it was emptied each morning into the barrel after draining all night. When emptying those barrels I noticed that in the bottoms the cappings were pretty rich in honey, so that explains the more than usual amount obtained. But making all due allowance for that, I was still surprised at the amount obtained.

As to using that honey, just now it is coming in handy in feeding some colonies that are rather short, between fruit bloom and clover. It is heated to the boiling-point with about one-third as much water as honey, and makes an ideal food.

Page 216, April 1, shows two of Mr. Holtermann's helpers taking combs from the hive, one holding the comb and the other sweeping off the bees. If helping in the yard myself, I should prefer to hold the comb myself; for after the bees have been pretty well cleaned off with a vigorous shake that can be acquired only by practice, about two quick strokes of the brush will take off what few bees remain on the comb. I am quite sure that I can do this quicker and easier than with the help of an assistant; *but* I don't object to the other fellow carrying or wheeling the honey into the extracting-house.

* * *

To us who are accustomed to seeing "Southern extracted" honey quoted in the honey markets at a very low price, the tendency is to make us believe that all honey from the South is of inferior quality. Mr. E. L. Horton, of South Carolina, has very kindly sent me five pounds of comb honey gathered from the locust; and I wish to say it is as fine a honey as I ever sampled, both in color and flavor. It certainly has that "morish" taste; and while I was not prejudiced against Southern honey, really I never expected such a fine article as the sample sent me. In this section we once in a while get a little honey from the locust, but nothing in the way of surplus; but what little comes in the hive is decidedly dark, and strong in flavor. Does "locality" explain the difference, or is there a difference in the kind of locusts? Just as I finish writing the above, I note that friend Buchanan, of Tennessee, says that the locust is one of his best sources of honey, and that the honey is water-white, and of fine flavor—assuredly a splendid description of the honey sent me by Mr. Horton.

* * *

Major Shallard says, Dec. 15, p. 797, that a good strain of Italians will not lay above the brood-nest. If he means that, in an ordinary eight or ten frame Langstroth without an excluder being used, a queen of a "good strain," as he calls it, will not go above in an extracting-super, then most assuredly I want none of that good strain in my yards. In the past I have had some that would act just that way, judging by their record at laying eggs; and such a queen would be decapitated just as soon as her peculiarity was noticed. No, sir; in this country, at least, where rapid building-up in the spring is not only desirable but simply *imperative*, we must have

queens so prolific that they would at once skip above for more room if the apiarist did not in some way give them more room than an eight-frame Langstroth hive affords. It is needless to say, I think that all extracted-honey producers should use excluders; but that does not forbid giving a prolific queen more room than the brood-nest allows, as it is a very simple matter to hoist brood above, or give an extra story for brood-rearing till the main flow opens.

* * *

The joke is on the editor. After publicly inviting Dr. Miller to "jab" me because of my slighting the editor's pet theory, the so-called "winter nest," the said doctor ends his "jabbing" with the words, "for practical purposes the Canuck holds the safer ground." The editor having received punishment already, I will just ask Dr. Miller one question, and drop the subject for the time at least. He says, page 74, Feb. 1, "Your experiment will prove nothing, for, as ye editor suggests, the minute you stopped feeding them they began scooping out a winter nest." Now, then, doctor, please remember that it was on Nov. 7 that the said colony had all combs *solid*, and that five weeks from that date we had weather about down to zero. How much of a "nest" could they "scoop" out of those solid combs in five weeks? You know as well as or better than I do that very few stores are consumed early in the winter when no brood is in the hive; but please say whether you think enough empty comb will be in evidence in five weeks to accommodate even one quarter of the bees. Talk about overstocking the country with bees—really this matter of advising full combs in the fall would be the greatest factor toward that end that could be imagined *if* all beekeepers in the North who winter outdoors would follow the plan. But you needn't worry; they will not do so, as it is too much trouble, and often too big a pull on the purse—at least those are the reasons that prevent this scribbler from putting all colonies in that condition every fall.

* * *

Dr. Miller asks me to state what temperature I would prefer for a straight "five-months pull" in outdoor wintering. I don't know, but rather suspect that the *changing* temperature we have is about right, as with proper preparation bees generally winter well under these conditions. No, I do not believe that brood-rearing starts earlier outdoors because it is colder than in the cellar. Generally speaking, the best cellar for wintering bees is one in

which the bees will be very quiet all the time, and, as a rule, little brood will be in the hive when the bees are taken out in the spring. There are exceptions to this rule, of course, but that does not nullify the rule. The steadier the cold weather outdoors, the less brood-rearing there will be; so, to my mind, the cause of brood-rearing, either outdoors or in the cellar, is "activity." When the temperature is 32 or 35 in the *shade*, it will register higher in front of the hives where the sun is shining, and that condition causes *activity* and consequent brood-rearing. Moderately cold steady winter weather gives best results in outdoor wintering, especially if too big a winter-nest (ha! ha!) is not allowed, so that the danger of the colony running out of stores *above* the cluster is avoided. If the colony is none too well provided with stores, then a warm spell now and then is imperative if the bees winter at all. Often such a colony will become stranded on empty comb during a prolonged cold snap, and will starve, leaving honey at the back of the frames.

* * *

VENTILATION FOR BEES OUTDOORS AND IN-DOORS.

On page 722, Nov. 15, 1912, Mr. Doolittle lays great stress on having entrances of hives in which bees are wintering outdoors so arranged that the bees will have an abundance of pure air circulating around the cluster. While in a measure I can endorse what he says, certainly it is a puzzle to me that, in another article of his regarding cellar wintering, he virtually claims that fresh air is not needed at all in this case. Results may prove his contentions to his own satisfaction; yet I confess that it appears to me that he would have a hard time to prove these different views from a scientific standpoint. Bees will nearly always winter out of doors with the cluster immediately over or back of the entrance, no matter where the latter is, provided it has been in that shape early enough in the fall. Whether the bees cluster in such a position to protect the entrance, or for ventilation, I am not sure; but I have proved by experiment that a good colony will winter, even if the entrance is shifted to the opposite side after wintering has started. As regards cellar wintering, the majority of those who thus winter are advocates of plenty of ventilation; and I suspect that many cellars get considerable air even when it is not actually provided for in a systematic way, thus making the beekeeper think that bees inside need no fresh air at all.

Beekkeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

Irrigation water is reported scarce in the Arkansas Valley; but sweet clover is abundant, and the bees wintered well, although grasshoppers are coming in fast. So far, grasshoppers are not much in evidence in Northern Colorado. A number of our Arkansas Valley beekeepers are replenishing their depleted colonies by shipping in from the South and Southeast.

* * *

THE HONEY MARKET.

The comb-honey market is practically bare. Prices range from \$3.25 to \$3.75 for clear white stock. While honey that is more or less granulated brings less, extracted honey in sixty-pound cases is worth about \$4.50 per can. There is a considerable supply of honey on hand, but in comparison with the total production it is relatively small.

* * *

BEHAVIOR OF BEES AROUND A ROBBER TENT.

Right after fruit and dandelion bloom closed it was difficult to work with bees. We had to use a tent 4 by 7 feet, without a top, and with mosquito-netting walls about 6 feet high. It is of just the right size to set over two hives so that two men can work in it together. It is amusing to see the robbers go around that tent looking for a place to get in. They will fly around two or three times in a regular swarm about two feet from the ground, and then rise in a body to the top of the tent, and some (not many) come over. They soon learn to attack the colonies after you have taken the tent away, so it is well to contract the entrances of the hives that you have looked at. After you have worked for several hours in a tent, the robbers will even attack the colonies ahead of where you are working; but by using caution we have not had any robbed out.

* * *

HONEY-CROP CONDITIONS.

Alfalfa began blooming in Oregon and Idaho the latter part of May. It is considerably earlier there on account of the low altitude. Throughout the inter-mountain West where the altitude is 4000 feet or more, alfalfa does not bloom before June, but from the first to the twentieth. A wet or a dry season affects this considerably. The wetter the season, the more luxuriant growth it makes, and the later it blooms. The price of hay is considerably lower at the present time than it has been for one or two years, and we are hoping this will have its effect on the farmers not

being in such a hurry to make the first cutting. However, I saw a mower being taken past our place the other day, so cutting the alfalfa is in the mind of some of the farmers any way. We are earnestly hoping for the time when nothing but the Grimm alfalfa will be sown. It blooms much more profusely than any other variety, and the great feature about it is that it begins blooming two weeks before it attains full growth.

June came in as a dry month. We had plenty of moisture early; but alfalfa that has not been irrigated begins to show the effects of drouth, and the sweet clover that does not have a supply of moisture at its roots is suffering.

Bees are reported in rather poor condition in the western slope. In Northern Colorado, especially around Denver, there has been less early swarming than last season; and, as compared with last year, there is much less honey in the hives June 1. In my own immediate vicinity I believe the colonies are stronger than at this time last year. White clover and what will bloom grows on the mesas and dry land are now furnishing about enough nectar for the bees to live on. However, I am giving each new swarm a comb of honey to make sure that they will not starve.

* * *

CONCERNING HIVE-RECORDS AND EFFICIENCY.

A beekeeper was telling me one day about his elaborate hive-record system. He had all his colonies marked so that he could tell upon coming into his apiary which were queenless, short of honey, weak, which had young queens, etc. It looked good, and was quite satisfactory, but there is another point to this. System gets in the way of efficiency if you get too much of it. Some of our largest beemen don't want a record system to last from one week's visit to the next. They want a clean slate every week. In other words, when a queenless colony is found, instead of marking it queenless, set it on top of another hive and be done with it. When a hive is weak, do the same or exchange places with a stronger one or give some hatching brood from another. Carry out this "do it now" principle and you will be surprised how little record system you will need in honey-producing apiaries. There is a difference, you know, between keeping bees and producing honey. If you are a honey-producer you do not have much time for record systems.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

TELEGRAM: (JUNE 17).

Crop conditions unchanged; worst ever.

* * *

BEES IN EIGHT-FRAME HIVES ENTER THE SUPERS QUICKLY.

Mr. J. L. Byer, in *American Bee Journal* for February, in commenting on my recent note in GLEANINGS relative to the size of entrances, upsets the theory of an eight-frame hive for comb honey, and at the same time upholds the idea that the larger the hive the sooner the bees build up in the spring. He says, "By force of circumstances I have almost all sizes in common use, from the eight-frame Langstroth to the ten and twelve frame Jumbo; and every spring, *without exception*, the bees in the eight-frame hives are the last to be ready for the supers." I believe this is the first time I have ever known a writer to advance so strong a plea for a large hive; and if it were not so absolutely at variance with my own experience I would surely give it more credence. Mr. Byer, no doubt, has some reason for making such an assertion, and under some conditions he may be correct; but as a rule I am sure the eight-frame hive will have bees in the supers before a ten or a twelve frame. I have the three sizes—not many of the eight-frame, about twenty of the twelve, and those in the twelve sizes are usually the last to enter the supers; but when they do get started, there is plenty of business, and plenty of bees to carry it on. Many of our best beekeepers and heaviest producers cut their hives to one story during the winter and spring breeding season to reduce the space that is to be heated by the bees to make breeding possible. Now, if it were not considered necessary to reduce the space during the breeding season the extra work would hardly be undertaken.

* * *

PROFITS IN BEEKEEPING.

Mr. Wesley Foster asks in the May 15th issue where I got my information crediting Colorado with 27,000 colonies of bees. If I am not mistaken I got it from some printed matter sent out by our State Association; and if it is not correct it was undoubtedly supposed to be, and was perhaps the best at hand at the time. I am glad Mr. Foster has made this correction. If the 1910 census should prove to be no more reliable in Colorado than in this State there

might easily be twice the number given by Mr. Foster. He also says, "But we have some of the best beekeepers to be found anywhere, and the homes of our beemen are a credit to the State;" to which I arise to remark, "*The same here.*" But do these homes represent apiculture or agriculture? I surmise the latter more than the former, for the Colorado honey sections follow the irrigated sections closely if I am correctly informed. That is true in certain portions of this State; but the greater portion of our honey comes from the part of the State that is considered at the present time to be valueless for agriculture. Perhaps 75 per cent of the beekeepers outside of the Imperial, San Joaquin, and Sacramento valleys, live in the cities, and many have very fine homes and all modern conveniences, while their apiaries are back in the foothills sometimes miles from a habitation. But did they make these homes as a result in beekeeping? In some cases they did, and in some they did not. There are those who have started in the business in a very small way who have worked up, have secured good homes, and have made a good living while others have invested heavily in the business at the start and have made a failure of it. One of the best-known producers told me recently that he wished he had invested in land years ago instead of bees, as then he would to-day be a very rich man. This is no doubt true; but it must be taken into consideration that he was figuring on the increase of land values and not altogether on what the land produced.

Bees are a good investment when properly cared for. The banker loans his money for 6 to 7 per cent on realty, and considers it a good investment. He can invest, say, \$2000 in the bee business, rent the bees out for half, and about one year out of every five he will get at least 30 per cent on his investment. Two years he will get 10 per cent, or an average of ten per cent for five years, allowing failures for two years of the five. Business and professional men care little for the business outside of returns on their investment, yet we find many of them owners of apiaries, which bespeaks volumes for the industry. I believe I have given conservative figures on the average.

I invested in bees in this State nine years ago. Two years, 1904 and 1913, I stand to lose five per cent on my investment. No other year have I made less than 20 per cent, and one year I made 125.

Conversations with Doolittle

At Borodino, New York.

HIVES AND DUMMIES FOR COMB HONEY.

"I have a few colonies, mostly in boxes of all sorts and sizes, and I wish to decide on some hive for future use."

"It is easier to decide on a hive for practical use in the production of comb honey to-day than it was forty odd years ago when I started in beekeeping. At that time very many of the hives most pushed on the beginner were much too complicated. They had slides, drawers, arrangements for catching moths, etc. Then many of the hives which were practical as to brood-nest and surplus were so large as to be cumbersome. The bulk and weight of any hive to be of practical value should be as small as may be. A hive that can not be handled easily by one man when it contains a colony of bees with from twenty-five to forty pounds of stores is, as a rule, to be shunned.

"The hive must not be expensive. Forty to fifty cents should purchase enough good lumber for body, cover, and bottom-board. There are few practical hives in use that do not embody the Langstroth principle as to frame construction. A simple box made to hold ten Langstroth frames with a super to match, suitable for holding the size of sections decided upon, is, to my mind, as good a hive as one costing three dollars.

"As to painting such a hive, I leave that matter to the desire of the individual. I do not paint. Looks count nothing toward a good yield of section honey. Dampness in early spring, in the interior of any hive, counts heavily against the maximum amount of bees for the early nectar flow from white clover; and a painted hive subjects its interior to a dampness that does not exist in an unpainted one. As to the durability, if a well-covered shade-board is used, as is necessary on any hive for the best results in section honey, the unpainted hive will last a lifetime.

"Besides the ten frames for the hive, it is well to make two or three *dummies* for each. Take a log to the sawmill and have inch-thick boards cut from it of the same width as the depth of your frame. Cut these boards the same length as the frame, and nail a top-bar to each. In this way one of these dummies can take the place of any frame at any time and in any place you may wish to use it. When the flow of nectar from white clover begins, and any queen does not keep the ten-frame comb-space occupied with brood, pollen, and honey, take out the unoccupied frames and insert a dummy in place of each frame taken out. This will throw the force of bees, and the

surplus nectar obtained, into the sections *right on the start*, and practically insure a good yield of section honey; while if the bees commenced to store this first nectar in the brood-chamber, little or nothing might be the result at the end of the season.

"Then there is another time these dummies can be used to good advantage in any locality like central New York, no matter how good the queen may be. Where the June and early July honey from white clover and basswood is nearly twice as valuable, pound for pound, as that gathered in the fall, and where there is a period of thirty-five to fifty days of entire dearth between basswood and fall flowers, this matter is of first importance. From past experience and observations I put the amount of honey needed to produce one pound of brood as two pounds; and as after several weighings I find that a well-filled L. frame contains two pounds of brood, therefore it is evident that such a frame of brood costs four pounds of honey. Five such frames of brood are all that is needed to keep any colony in good strength for fall and winter; therefore, all over this is an actual waste of our highest-priced honey where the eggs are laid after the bees coming therefrom emerge too late to work in the harvest from the white clover and basswood. As the harvest from basswood closes here about July 20, and as no eggs can give bees of value in any harvest sooner than thirty days from the depositing of the egg, it is easily seen that all eggs laid later than June 20, beyond those necessary for the successful existence of the colony, can be of no value to us. Hence, where the bees of their own accord do not restrict brood-rearing down to about five *full* frames, it is economy in white comb honey to use these dummies to compel them to do so. With black and hybrid bees these dummies can be made to pay from \$150 to \$200 each year where used in an apiary of one hundred colonies; but with a good strain of Italian bees (a strain which reduces brood-rearing as the flow of nectar increases) the use of these dummies for the purpose of repressing this out-of-season productiveness is not so apparent.

"As I have written in the past, the hive and strain of bees capable of putting the maximum number of bees on the stage of action in time to take advantage of the nectar flows, and as few at all other times as are needed to carry on the colony to a successful issue the next spring, are the ones to adopt."

General Correspondence

THE GOODS AND THE GAME

Why Some Producers Can Not Get a Reasonable Profit; a Better Package Needed

BY W. S. SHAFER

On page 620, Oct. 1, 1912, is an article by R. A. Nusbaum which is very good and right to the point, except that he did not go far enough. His four points of salesmanship are well taken. I speak after having had nearly twenty years of experience as a salesman in nearly every phase of the game; but I am a "Greener" in the handling of honey. However, I think I have made good when it comes to selling it. I speak of comb honey in particular.

The great big point, it seems to me, that Mr. Nusbaum omitted, is the goods. In the first place, a salesman *must believe in his goods* if he expects to make a success in selling. A half-hearted salesman is worse than none. Now, let us start with our honey as it is in the super, and follow it through the necessary preparation that is required to make it presentable for market (the manner in which we handle our honey). After it is taken from the super it is carefully graded, following as nearly as we can the picture grading-rules as given in the *Review*. Then each section is thoroughly cleaned, making the section wood as near its original color as we can. Then each is placed in an individual container, and four sections are packed in a folding box, and the box closed, making it dust and insect tight. It also makes a very handy and attractive package. After doing this we have goods that we can believe in—goods that we know are right and the best on the market, and we are fully justified in asking a price that is from five to eight cents per section above the store price for honey, and we get it; and for the last two years we have been unable to meet the demand for our comb honey.

We will use Mr. Nusbaum's own ammunition and try to shoot it harder. If the reader will notice, "grapenuts," "Meadow Gold butter," etc., are not handled in bulk nor placed in an open box so that flies and dust, which means germs, can accumulate; but, on the contrary, are put up in handy-sized packages which are attractive, and each package is sealed so that nothing can get to it. It is sanitary and clean—just what the modern housekeeper is looking for. Now, why should the producer of comb honey be behind in the method of putting up his goods for market? I spent a day in going from one broker to another

examining honey that was shipped to Omaha. In not a single case did I find honey that had been what we call cleaned. I also looked at honey in twenty different groceries, and in two places they had honey on display in a showcase, but their surplus was in shipping cases that had been opened and were under the counter. In the other places the honey was in the shipping cases on the counter, open to every thing. Now compare the average honey to the modern food articles in the average grocery.

Our own experience has been that, if we take good care in the preparation of our goods for market, we can get from five to eight cents more per section for it. To test out my plan I purchased two cases of honey from a broker, and prepared it as we do ours, and had no trouble in getting our regular price of twenty-five cents per section. It cost me fifteen cents per section.

Some will argue that we can not wholesale it and get the same proportionate price so as to make the extra labor and expense pay us. We will answer that by giving some of our sales last fall. One large concern heard that we had a new way of putting up comb honey and wanted to see it. After seeing it he wanted to buy the entire crop; but as we had worked up a retail business that took about all, we could let him have but 500 pounds, for which he paid us 82½ cts. per box of four sections, which equals \$4.95 per case—a pretty fair wholesale price. He sold it at \$1.00 per box of four sections.

We also believe in advertising. We have prepared a little folder telling about honey, which we distribute from house to house, also taking orders at the same time. That is, we did that last year. This year the orders have been coming in so fast that we shall not be able to fill them if they keep up. We also did some advertising through the press, and sent some personal letters, a copy of one of which is given herewith.

Dear Madam:—This is the season of the year when we are gathering Nature's harvest; and among her many gifts we find that pure honey is one of her triumphs. Its delicate aroma, its smooth, velvety taste and flavor all its own make it a dish that is fit to grace the table of the most fastidious.

The appearance of a box of our pure comb honey immediately appeals to your sense of cleanliness. It is packed strictly in accordance with our ideas, is absolutely clean in every respect, and is backed by our reputation for cleanliness. It is absolutely pure; has never been exposed to flies, dust, nor any unsanitary conditions. It is taken from the hive, placed in a container, then four of these containers are packed in a box and sealed, making it absolutely impervious to dust, flies, or any contamination.

"To touch a man's heart, tickle his palate." Try it with a supper of hot biscuit and honey.

In these ways we have been able to work up a sale for our honey that does not leave us one section of marketable honey at the end of the season.

Some will, perhaps, argue that it is impossible to prepare their product properly because of lack of time. It does take time, but it pays big dividends. We have about 150 colonies this year.

As an illustration of what good goods well put up for market and salesmanship will do we will say that three hours' work with a sample package of honey gave as a result: Net sales, 164 lbs. No sale less than four pounds or \$1.00, from that up to \$8.00 for 32 lbs.

We believe that the producer is as much at fault as the salesman. You can not get the top price for your honey if you give it the bottom preparation for market; but if you have goods prepared in modern style, coupled with modern salesmanship, there is absolutely no reason why the average honey-producer can not get from two to ten cents per pound increase for both his comb and extracted honey.

Bellevue, Neb.

PRODUCING WHAT THE PUBLIC DEMANDS

BY WALTER M. ADEMA

As some writers have said, it is hard to tell of one's failures, and easy to tell of success. I will try to tell of both. My bee-keeping experience started in 1906 when I got my first two colonies of my brother, who sold his bees—17 colonies in all—to go into other business for himself.

My first lesson, which was dearly paid for, was in not giving a stray swarm ventilation. I hived the bees on a hot close day the latter part of May. I left them in the shade of a tree in the forenoon so that they would mark their new location after the hive was opened. But to my sorrow the bees and combs were all one mass on the bottom-board when I opened the entrance. The heat of the bees had melted down combs and all.

At first I used the double-walled eight-frame chaff hive, of which I had about a dozen, which I had bought at a bargain.

In the spring of 1909 I started out with a new equipment, consisting of the Langstroth hive, three stories high, as I wished to run for extracted honey. One of the reasons for going into extracted honey was that I was unable to sell any comb honey locally. That is one thing upon which I wish to put emphasis—if one is producing for a local trade he must first find out what the locality demands. I find that a 10-lb.

friction-top pail is best suited to my needs, as ten pounds is as much as most families will buy at one time. At first I charged \$1.00 a pail. I soon felt that I ought to realize more for my honey, but I was afraid to change as I thought I would lose some of my customers. Last year, however, I charged \$1.25 a pail, and, strange to say, my sales increased, and I had to buy a large quantity with which to fill my orders.

I always make it a practice to insert an advertisement in our local newspaper each year after extracting, and find that it pays well. Just now I have a customer living a hundred miles away whom I got through our local paper. He had ordered over thirty pails so far this season. He is a factory man, and it seems no trouble at all for him to go among his fellow-workmen and get a club order for 60 pails. That is just the trade we want to encourage. It takes time and money to get customers like this, but once in your possession they are the best you have.

As to the financial part of beekeeping, I find that it pays better than any other farm crop.

I was fighting foul brood last season, and again this season. It's discouraging, it is true; but what calling in life has not its problems?

I winter my bees in a box large enough to take in ten colonies back to back. I pack them with straw, and cover the whole with tar paper. I find that they come out stronger in the spring than in double-walled hives.

I have added poultry along with the bees, and hope some time to devote all my time to bees and chickens.

Berlin, Mich., Dec. 11.

A STEAM-BOILER FOR ARTIFICIAL RIPENING OF HONEY

BY T. BOLTON

GLEANINGS for Dec. 15, 1912, p. 801, contains an interesting and instructive communication from Mr. Hopkins, of New Zealand, on the artificial ripening of honey—*atmospheric ripening* we can call it. For about twenty years I have been practicing artificial ripening. I have not depended upon atmospheric conditions, but upon a small steam-boiler and appliances devised by myself. By means of these I accomplish not only the ripening when such may be needed, and by that I mean the evaporation of any excess of water, and increasing the honey's specific gravity; but my main object is to clarify or refine the honey to make it amenable to rapid tanking, and to do

away with the old unscientific mess and bother of strainers and cloths.

The honey runs directly into the appliance from my extractor, which is driven by a small steam-engine. A $\frac{3}{8}$ -inch pipe takes steam into the jacket of the ripener, and on its way through it the honey is heated, refined automatically, separated from the scum that rises freely in the process. It is then pumped by the same power into the tanks. The next morning it is fit to draw off into 60-lb. cans, and will then keep uncandied after this process for two years or more; whereas if put into tanks in the ordinary way, cold and strained, it has to be drawn off within a few weeks or it will have to be dug and chopped out (certain varieties).

This once happened to me when I left a square tank of 5000 to 6000 lbs. of honey in midsummer newly filled. I went away for a few weeks, and came back to find that only the outer part of the honey was available by way of the tap, and the center was a huge pyramid, a mass of candy. For a week or more two boys had to get into the manhole of that tank, dig out the honey into dishes, and pass them to me to melt. I don't know how many chisels, trowels, and wooden paddles, improvised for the occasion, were bent or broken in the job. I might say that half of the tank was protruding outside into the sun's heat—my idea of the ripening process then being thus to cause a circulation in the tank through one side being hotter than the other.

After a few years I adopted steam heat in different experimental ways, till I have now a satisfactory appliance which saves both labor and time.

One reason why honey thus treated is not so ready to granulate is because such a large amount of presumably pollen grains and wax particles are removed, and cease to act in the bulk as centers or nuclei around which granulation gathers.

In one part of the apparatus the skimming is coarse and largely wax; in another finer, and largely pollen. The former is removed to the uncapper to be melted, the latter I am carefully preserving in 60-lb. cans for the next term of pollen drouth that comes along, and so seriously cripples our bees. I hope it will settle the trouble of feeding an artificial pollen, which hitherto we have sought for in vain.

There is always one drawback to any method of artificial ripening of honey depending on exposure to atmosphere for its effect. The exposure surface is large necessarily, and it is as large for the absorption of moisture as for heat and evaporation of it. Weather changes make it possi-

ble to lose one day what was gained the previous. This makes it a slower process still. But not only so, but the surface in its relation to the bulk or contents is large too, for the collection of dust; and over here we have dust storms that have great wall and roof penetrating power. Finally, the heat applied on the surface keeps the top layer warm, consequently lighter, and it stays on top. The colder layers that we want to rise in succession to be in turn warmed and dried are kept below. In short, circulation and air exposure are checked. But apply the warmth underneath, and what a difference in time taken and in the result!

Hamilton, Victoria, Australia.

HONEY NOT GETTING A FAIR SHOW IN THE STORES

BY L. RIEBEL

In my travels and in giving demonstrations with bees at fairs and at exhibitions of different kinds, it always annoys me to hear people call all kinds of liquid honey "strained honey." Many times, when there is a good display of extracted honey, people will call it "strained honey," when there is much difference between the two. Whenever I have a chance I make it a point to call at some of the largest groceries in the city where I happen to be and look up the honey proposition, I frequently have an experience like this:

In talking to one of the head clerks or the proprietor I inquire whether they have any honey, and learn that they have section honey and strained honey. I state that I should like to look at it, and almost invariably find some extracted honey gotten up in good shape. I then explain the difference between strained and extracted honey; but if a customer comes in and asks for honey while I am still there, the clerk or proprietor to whom I have been talking says that they have *strained* honey.

I think that the merchant himself is largely to blame for not informing himself on the different kinds of honey just as he would on other goods.

CARELESSNESS IN DISPLAYING HONEY.

The independent and careless ways of merchants in putting comb and extracted honey before their customers is to be deplored. In a large store in a town of 30,000 I once saw eight single-tier cases of comb honey—fairly nice-looking honey—in $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{7}{8}$ sections, piled up, four cases on top of each other, and the lower case on the floor, with the glass broken. Some one had shoved the toe of his shoe through

the case. You could see the prints on the section of this same case. Another case showed marks left by the broom as it had swept along the floor. At one side there was a basket of potatoes; on the other side, half a barrel of pickled tripe. Both upper-tier cases were open, and about half full of sections, some of which were lying flat, some edgewise, some crosswise, more like potatoes in a basket than honey. Many of the sections showed thumb and finger marks, and were badly stained. This, mind you, was what was considered to be a "swell" grocery—in fact, the best store of the kind that I visited that season.

Then, again, I have stepped into a grocery where the farmers were bringing in comb honey in supers. The merchant would take it and set it on the counter just as they left it. It was evident that no separators or starters had been used, and sometimes the honey was in old sections, which were then second-hand. The honey bulged in all kinds of shapes, and such a mess as the clerks and merchants would make in getting it out! I place the blame on the merchant for accepting honey in that shape. Is it any wonder that honey has to take a back seat, and does not move off in the local market as do other goods?

There is one thing I can not understand: Why merchants who have made grocery-keeping a business, and take pride in keeping other goods neat and attractive, should give honey such a black eye. They would not dare to treat butter or other commodities that way or they would soon lose their butter trade.

It is surprising to know how little people in general know about the bee and the way in which honey is made. What a field there is to labor in! I am doing what I can to educate people as I have opportunity, and most of them seem to appreciate it. I think this matter should be brought before the merchants in some way, either through the columns of the newspaper or through little pamphlets which will interest them until they will take, at least the same interest in honey that they do in other lines of goods.

Chariton, Iowa.

ADVERTISING UNTIL THE CUSTOMERS COME TO THE HOUSE

BY GEO. SHIBER

On p. 632, Oct. 1, 1912, I find a very readable article by Mr. C. W. Powell on organization by beekeepers for the purpose of better disposing of honey. I have no doubt that organization is a good thing;

but I am sorry to see him bolster up his argument by saying, "A rocking-chair for which you pay the dealer \$5.00 costs him \$1.50;" and "carpets selling at retail for fifty per cent profit." That would be too far "up in the air," for the Eastern States at least.

Now let us consider for a moment the question of the best way of disposing of a crop of honey. Mine is all extracted. There are two or three things that are very necessary for selling direct to the consumer. I am not going to say any thing about putting it up in 60-lb. cans and bringing to a honey-buyer. That's easy, but it doesn't bring as much cash.

The first important thing is to have your product fancy, all sealed.

Second, put it up in packages of about ten or twelve pounds, and some sixty-pound cans. Draw it off in these packages, just as fast as you throw it from the combs. Have the honey-tank emptied every night. The sooner you can seal up honey air-tight after the combs are taken from the bees, the better. This is one thing I feel that I *know* about beekeeping.

The next thing, let people know you have it for sale. The cheapest way I have found is a reading notice in the town paper like this, run very week until the crop is sold:

HONEY.—I could fill this paper with letters and words of praise I have received in regard to its quality. I have it in gallon tin cans and five-gallon tin cans.

SHIBER'S APIARY.

Canvassing? I never canvassed a minute in my life—people come after it.

Perhaps you may think a little may be sold this way, but not a crop that goes up into the tons. Well, year before last was a very poor one, and nearly 4000 lbs. was sold before Thanksgiving. Last year, with a crop of 8000 lbs., it was nearly half sold by Oct. 1. We sell gallon cans at \$1.45; two-quart glass jars at 85 cts.; one-quart glass jars at 45 cts. At those prices it is a cheap food. Why, last year one man bought four one-gallon cans, and after New Year's day he was asking for another can, but it was gone.

MERE PUBLICITY OF NO AVAIL.

I want to say that the reason why it is hard to sell honey from one's home direct to the consumer is because very few people know he has it for sale. Oh, yes! I know the local apiarist has the reputation of being a beeman, and whenever he gets into a crowd or goes into a store the hangers-on usually try to start some bee-yarn about a bee-tree that "Abe Baldwin cut once," and how the speaker "didn't get stung once," etc.; or to have the reputation of "going out to hive a swarm of bees without any

Continued on page 463.

ADVERTISING HONEY WITHOUT EXPENSE

BY JAY SMITH

Beekeepers as a rule do not realize what an advantage they have in the way of securing free advertisement—not only free, but, if properly managed, one can get pay for advertising his own business. We beekeepers study the mysteries of the bees, and discuss them among ourselves through the medium of the bee journals until to us they are commonplace. The rank and file of the honey-consumers never get to know of the marvelous things of interest concerning the bee and its works. It is “up to us” to



A similar picture of Jay Smith has appeared in hundreds of magazines all over the country.

give them, through the newspapers and magazines, live, interesting sketches of the bee and honey industry. They like any thing unique, original, and interesting to the public. Of course a person must not give the articles the appearance of advertising or it will “queer the game.” It is not necessary to say that you have honey or bees to sell. If you have bees they will know that you have honey. I have frequently noticed the surprise of people when I tell them that I produced a ton of honey. The word “ton” seems much bigger when applied to honey than does 2000 pounds. So does “half a ton” or a “quarter ton.” It probably seems big to them because they were familiar with it only in spoonful lots when colds were prevalent.

Then, again, the public can not get away from the belief that the principal business of the bee is to sting—that the sting is something awful, and that, if you go near a hive of bees, you are taking your life in your hands. Some of the common stunts that are pulled off among the beekeepers would amaze the public.

One of the most successful things I ever did in the way of advertising was by the use of the accompanying cut. If I could call for a show of hands as to how many readers of GLEANINGS have seen this picture thousands of them would respond. I made this photo last summer more for the fun of the thing than for any thing else. I made several negatives, and sold one of them to Underwood & Underwood. They must have made a good thing out of it, for it is still running in papers and magazines all over the world. Scarcely a day goes by but some one brings to me a paper in which he has discovered my picture. One saw it in *Harper's Weekly*; another in the *Chicago American*; another in the *St. Louis Democrat*, and another in a supplement to a Sunday paper. I have heard of it from Los Angeles, Cal. From Texas a paper came from a relative with the bee picture in. The president of our university attended the inauguration of President Wilson, and while there he mailed me a New York paper with my bee whiskers in. (Underwood & Underwood give it the dignified name of “Bee Beard.”) From far-away Idaho comes word from our friend Geo. W. York that he saw it in a paper. I mention this to show how the public is interested in any thing unique in the bee line.

I do not know how much good this has done me in the way of selling honey; but I do know that I have sold more than twice as much honey this year as in any previous year.

Vincennes, Ind.

SELLING HONEY BY THE CARLOAD IN ARIZONA

A Brief Mention of Some of the Men who do it

BY WM. LOSSING

One of my customers, Mr. Peter H. Benson, of Palo Verde, has sold me two carloads each year for the last two years. He is a farmer making the bees a side issue (a rather good-sized issue). His equipment consists of 500 colonies divided into three apiaries. At each apiary there is installed a six-frame automatic power extractor and a $1\frac{3}{4}$ -power engine which is conveyed from one yard to another. He also has a pump,



Loading the largest car of honey ever shipped out of Arizona. Fairground siding, Phoenix, Oct. 4, 1912.

steam honey-knives, Hatch wax-press, and settling-tank having about 200 gallons capacity. The buildings consist of up-to-date honey-houses, finest of sheds, and a galvanized warehouse 20 x 30.

The hives deserve special mention. The Hoffman frames have long molded top-bars, and are wired and fitted with full sheets of foundation. The hives are of the ten-frame size, and are made of redwood. There are 500 wire queen-excluders and 100 bee-escapes. At each yard is a Daisy wheelbarrow, and some smokers and veils. The bees are the result of much care and judgment, which is plainly shown by the uniform markings of the Italian bees.

Mr. Benson is practically a new man in apiculture, and a fair sample of many instances near Phoenix where new beemen have sprung up, as it were, and budded, bloomed, and bore fruit in one night.

The illustration shows the largest car of honey ever shipped out of Arizona. It was loaded at the fairground siding, Phoenix, Oct. 4, 1912, and was one of 16 cars shipped by the undersigned, an independent shipper. This amount is about half of the honey produced in the vicinity of Phoenix, including Buckeye and Palo Verde, Ariz. The car is the product of beginners, one of which, whose check amounted to over \$1200, is J. J. Myers, of Phoenix, who never sold

a pound of honey before, last year being his first. In the picture four of his teams are shown, and Mr. Myers himself is sitting in the foremost wagon, as dignified to all appearance as a full-fledged apiarist.

John H. Bennett, another new shipper, is managing about 500 colonies. His check was not quite as large, he having retailed a great deal of his honey in the city. His outfit seems to be about as near up-to-date as any of them. He has a migratory honey-house equipped with a four-frame automatic extractor, gasoline-engine, and other implements necessary for carrying on his successful operations. Much is predicted of John.

Among the other new beemen of the past few years I wish to mention a few of the principal ones. Albert J. Ross, of Buckeye, is cutting a wide swath in the line of apiculture. Two years ago he bought 600 colonies on time. That fall he paid from his honey money about half of his indebtedness. Last fall he sold enough honey (nearly two carloads) to put him out of debt and place him in good running order for the next year, such as buying a small tract of land, building a new house, and taking unto himself a helpmate. The writer bespeaks great success for Albert.

One James H. Tracy, Buckeye, who has been in the bee business for several years,

has demonstrated beyond a doubt the profits that can be made in the bee business in Arizona. The last three years all his honey put together would total about nine carloads. These carloads of honey range in cash from \$1600 to \$3000 per car, regulated somewhat by the amount and price in the car. Mr. Tracy has a nice little home, out of debt, 700 or 800 colonies of bees, a good horse and buggy, and money in the bank. The one improvement that I would suggest would be a nice wife; then Jim would surely be on the road to happiness and prosperity.

If this article does not find its way to the waste-basket I shall be pleased to finish the report, as we have many beginners who are worthy of mentioning, a few of whom I will simply name for the present: Wm. Doner, Walter Dickerson, Levi J. Holtzworth, Mrs. L. D. Smith, Mrs. May G. Lovett.

Phoenix, Ariz.

HONEY-SELLING VIEWED FROM A STORE-KEEPER'S STANDPOINT

Wrapping Each Section in Transparent Paper Tied with a Silk Thread, and Selling for a Fancy Price

BY C. B. PALMER

Shall we improve the style and appearance of the section of honey, and keep pace with all other packages of merchandise now handled in the grocery or general merchandise store, and receive a better price for our improved package? Or shall we continue to place our sections on the counter in the same old way we have done for years, and then wonder why our honey brings no better price than it did last year or the year before, or, in fact, than it did fifteen years ago? and also why there is not an increasing demand? I doubt if there is a food in our store, the style of package of which has not been improved on in the past few years. We must cater to the demand.

Back in the seventies, when as a boy I was drawing wood into old Kalamazoo, father would sometimes say, "Take a grain-sack along and go to the bakery and bring a dollar's worth of little round butter-crackers, always so fresh and crisp."

Go to your store now and ask for a dollar's worth of crackers. You will be lucky if you get five packages, and on one end of each package will be marked in very small type, "This package contains twenty-nine ounces of crackers." But see the elegant, bright, pretty package. Some one has seen fit to cater to the demand of the trade, and you can scarcely find a family to-day

that does not keep crackers constantly in the house.

A glance over the shelves in my store tells me that the old method of handling honey must go. The method is so crude and so antiquated that the food commission had to compel us by law to carry our honey in glass show-cases or other suitable covering. Sections of honey are much easier to enclose than many other packages of foods, especially dried fruits or foods that contain oils, or any food that the moth miller can reach.

I can count more than fifty different packages of goods put up in the most attractive forms possible. These were all handled in bulk only a few years ago. But should I order a case of honey it would come in the same old mussy leaking condition. No wonder that merchants do not try to create a demand for this class of goods. It is up to the producer to increase the demand.

One of the most attractive packages I have is a three-pound rice. I have this same rice in bulk in a dish on the counter, marked five cents a pound, but no one wants it. It does not attract the buyer's attention. It is the old-style method of showing goods, and customers are looking for something new. Consequently they take the three-pound package at twenty-five cents, and are pleased. The producer of the beautiful gilt package has increased the selling value of the package, and at the same time increased his own profits as well as mine.

The large producer of honey has no trouble in finding a market, as he has made a study of the demand and knows how to supply it. It is the man with only a few pounds or a few hundred pounds who becomes discouraged and soon drops out for lack of a market for his few pounds of surplus. When I found myself in this position I began to look around for a market. I found every store supplied with honey, from honey one day old (the merchant had lost a stand from disease, and he was pressing the honey out of old filthy combs into glass fruit-jars), to honey so old that "whiskers" were growing on the sides of the case. Some of the honey looked like some of my own, especially that with the "whiskers;" but all, good or bad, was in $4\frac{1}{4} \times 4\frac{1}{4}$ sections.

I decided that, in order to sell my honey and make a demand for it, I must first change the shape of the package so that the customer would not be looking at the same old mussy, grimy, dusty section, and I decided to overhaul all my supers and produce nothing but 4×5 sections. Then I would see how nice I could put them up

for the trade. All the time my thoughts were to cater to the trade, leaving the price to take care of itself, if I created the demand. As a result, for the past few seasons our honey has been sold up a year in advance, and for three years we have not had honey to retail from our own store.

SHIPPING SMALL AMOUNTS OF COMB HONEY,
FROM A FEW SECTIONS TO A FEW
THOUSANDS.

I use a common candy-pail, which is charged up to the customer. He can always sell the empty pail or return it for credit. The pails can be procured in any size. I use one 11 inches deep and $12\frac{3}{4}$ inches across the top, inside measurement. It holds thirteen 4 x 5 sections in the bottom layer and fifteen in the top, twenty-eight in all.

To pack the pails, twist some *clean white* paper into ropes and crowd between the inside of the pail and the sections. Care must be taken not to crowd the face of any section. However, no one but a careless packer can do this, as the wood comes nearest to the pail at all points. Crumple more paper and fill the top of the pail and place



Wooden candy-pail for shipping comb honey. A shipping case that is proof against honey breakage.

the cover on. There are two small wires that bend over the cover. Put a common nail in the loop, twist the wires together, and the pail is sealed better than any nails could do it. The pails are all painted white,

and marked on the top "Comb honey. With Care." Braided cornhusks would be even better than paper, and would add to the appearance.

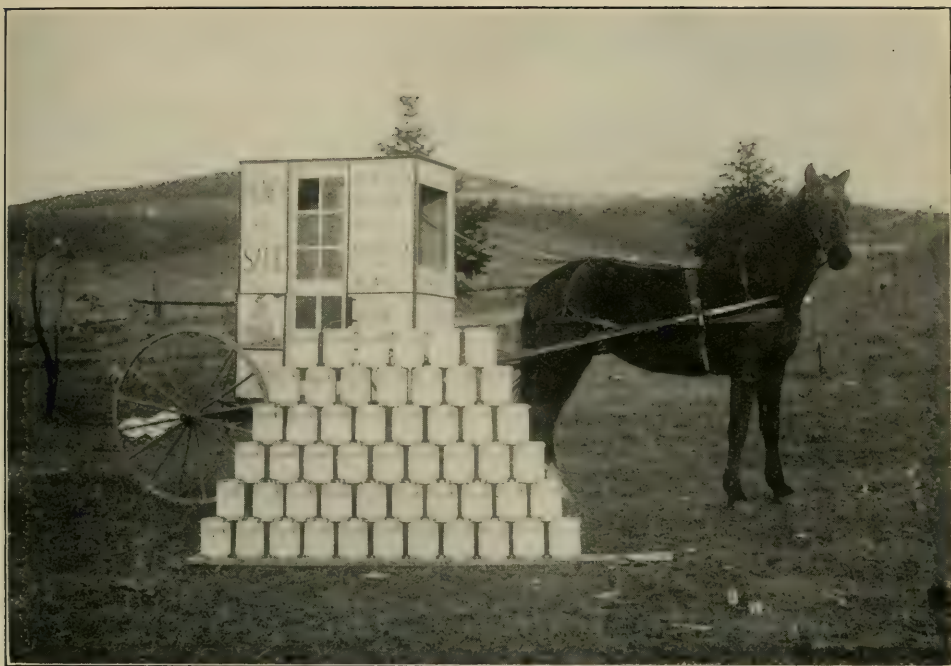
The sections should be honest, even weight and color. No section should weigh less than $13\frac{1}{2}$ ounces. (The first two seasons I shipped nothing under $14\frac{1}{2}$ ounces.) They must be perfect, and No. 1 in formation and capping. Then quote by the section and seek in a city for a customer who can use all you produce. Employ all your spare time improving the appearance of the section so it will sell, and orders will be repeated. I would not care for a customer who did not repeat. You are the producer. You make the package attractive, and the price will take care of itself. If a customer does not repeat, it is your fault and not his. He has to have the honey to sell, and you must create the demand for *your* honey.

I have been in my store for thirty years, and I know the kind of goods that sell. When a lady sees a new-style package of food, and is shown that the package is fly and dirt proof, she is always interested and expects me to talk up the goods. She is attracted as much by the package as by the contents. Nearly always I make the sale, and the next day I have calls from her neighbors for the same article.

Each section should be wrapped in transparent paper, and tied with a strand of bright-colored silk. I think the coming season will see all my sections tied with a ribbon similar to "baby" ribbon. Our honey crops are sold a year in advance. For three winters we have not had honey to retail at home, and to-day we have none for our own use.

We have been shipping in these pails for about seven seasons, and have yet to get the first report of contents received in bad order. We have taken particular pains to ask express agents at destinations to examine shipments, and all have reported best of condition. No pail has ever been returned to us with a stain or mark of a broken section. In fact, one can safely guarantee that honey packed in this way will arrive in a satisfactory condition. The secret is in the shape of the package, since one can not be set flat down, but always strikes the edge and has a rolling motion.

We have customers in several towns and cities who sell from a few hundred to a thousand sections to whom we have had to return their extra orders unfilled. Frequently strangers come into the store and make the remark, "Oh! this is where the honey comes from, tied with a silk thread." So we see that the smallest detail, the silk



Kirkpatrick's honey-wagon.

thread, is noticed, and serves as a trade-mark. An old customer called, and said she had come for a pail of our honey, and asked us to ship it to Lincoln for her. I told her that this would be impossible, as a dealer there had bought all our crop; and as we were shipping about 600 lbs. that week she could get the honey of them. She did not think that was exactly fair in us, but we wrote our customer to see her at once and sell to her.

Be sure to protect your customer, and be very careful not to compete with him. I could have made fifty cents more on the pail by selling to that lady, but I might have lost my customer. We positively refuse to sell at retail to any one who lives in a town where our honey is on the market, although we have many chances to do so.

Pradshaw, Neb.

SELLING HONEY DIRECT TO THE CONSUMER

BY GEORGE H. KIRKPATRICK

Beekeepers who have the time and talent may dispose of a quantity of honey at retail price. By a thorough house-to-house canvass in the neighborhood or county I have sold many tons of extracted honey to farm-

ers, lumbermen, and wood-choppers. In selling honey in the homes we must abide by the golden rule and always do unto others as we would they should do unto us.

When approaching a new customer ask him for a few moments of his time, and then in a few words give an outline of the proposition. At the same time remove the top from a pail of honey, and ask the prospective customer or his children to sample the honey. With book and pencil in hand ask the gentleman for his name and address; and while writing it inquire how many pails of honey he wishes. He will be quite sure to take a pail; but if he should not it will do no harm to have his name and address.

Offer for sale only the best honey, and ask a fair price for it, which should be 5 cts. per lb. above the wholesale price. The honey should be put up in ten-pound friction-top pails, and neatly labeled. Make the same price to all customers, and request the retail grocers to whom you furnish honey to sell to their customers at your retail price.

One of the most important parts of the equipment is a special vehicle, neatly painted and lettered. Such a rig will bring many a customer who would otherwise be missed. The illustration shows my vehicle. It is painted white, and lettered in black. It has

a carrying capacity of 500 lbs., or 50 ten-pound pails. Fifty-one ten-pound pails are also shown ready to load in. The same body can be put on a sleigh for use in winter. I also have another wagon having a carrying capacity of 75 ten-pound pails. Both rigs proved comfortable to ride in, and a great help in selling honey.

Rapid City, Mich.

WHY THE DARK COMB HONEY SOLD SLOWLY

BY N. B. JOHNSTON

Without being able to give the dates when they were published, the writer recalls several short articles emanating from the editor, somewhat in the nature of remonstrances against the tendency of apiarists to produce and to offer for sale an excessive quantity of extracted honey at the expense of the quantity of comb honey produced. I would make a few remarks on that position of the editor, subject to such reply or criticism as may seem proper.

I wish to state in the first place that, although this will be the eighth season of my experience as a beekeeper, I still feel myself a novice at the business, as I see so much about it which I must learn before I can consider myself or would be considered by others as an expert. During all this time I have confined my operations to the production of comb honey. Although I have had an extractor during the past two years, I used it to a very limited extent last year.

My advance in a knowledge of the business has been slow, and my production consequently small. For several years after starting I was able to dispose of my honey without much trouble; but last year my increase had attained a total of twenty-four colonies, two of which produced nothing; and three others, being utilized in carrying out Doolittle's method for swarm prevention, left me nineteen only as honey-producers, from which I obtained about 2000 well-filled sections, a large proportion of which was, as it appeared to me, as pretty honey as could be made in this region, though I have never seen (what I read so much of in GLEANINGS) any of the handsome honey made in the North, so I can make no comparison between it and the product of the bees in the South, samples of which I sent at Christmas, in twelve-section shipping cases, to friends in North Carolina, Virginia, Tennessee, and Pennsylvania, all of whom, whether to flatter me or not I can not tell, pronounced it "delicious." This,

after making some small sales on the home market, left me with something over 1700 sections unsold, which I shipped on consignment to a large produce house in one of the largest cities in the country. I was advised that it all arrived in good order, no complaint being made on any score (though I especially invited criticism for my own information), except to say that, owing to color, it was not so acceptable to the trade as was the white honey from California; but knowing that every thing offered in the market, in other lines than honey, is not always, and all the time, "first class, A No. 1," I supposed that a market would be found for this shipment, though not expecting such prices for it as could be obtained for the more popular kinds.

But in this I have been much disappointed, being advised within the last few days that still one-fourth of the shipment remains unsold. This unsold portion is doubtless the darkest, which you say the people up your way will not buy, notwithstanding the positive claims of your Texas correspondent of last year for its superiority. We can not control the operations of the bees in this respect, and must take what they give us.

In contrast with this I shipped a small quantity of the same honey, which had been extracted, to a dealer in another direction, and received returns for it within a few days after its arrival at destination; and the problem which confronts me is how I shall shape my operations for the coming season. I have a full outfit for comb-honey production, and also an extractor. I now have 31 strong colonies. So far as I am concerned, beekeeping is only a side line as a means of occupation during a protracted period of idleness in my regular business. I secure more entertainment and occupation in handling the apiary for comb honey than for extracted; and I like that branch of the business best; but if I can not sell the product, how can I make the business even self-sustaining, to say nothing of its being profitable?

Greenville, Miss., March 25.

[We may be wrong; but we should say that a local market should be built up to take care of the darker grades of comb honey. "Snowy-white" sections usually sell the quickest, and on this account dark comb honey should not have to compete with the white. There are many localities where the darker honey is better known (and better liked), and as a rule it is best to seek such a market rather than one where the demand is largely for the white.—ED.]

HOW ARRANGEMENTS ARE BEING MADE FOR THE HANDLING OF HONEY

BY E. G. WARD

The pictures shown herewith illustrate a new departure in the history of the disposal of honey produced in New Zealand. It has been well known among beekeepers that the production has been steadily increasing for a number of years, and that each year sees an increase of those engaged in the industry. The season of 1912-'13 has been an exceptionally good one in most parts of the dominion, and in Canterbury in particular. These conditions have all tended to bring matters to a head; and the result is that the National Federated Beekeepers' Association of New Zealand has now completed arrangements for the first shipment of first-class honey under government grading rules. The shipment consists of 11 tons, all sent by two producers only, and a similar quantity will be dispatched next month, and subsequent shipments as producers get better acquainted with the scheme. The first shipment will leave early in May; and as the quality is so high there is no doubt of

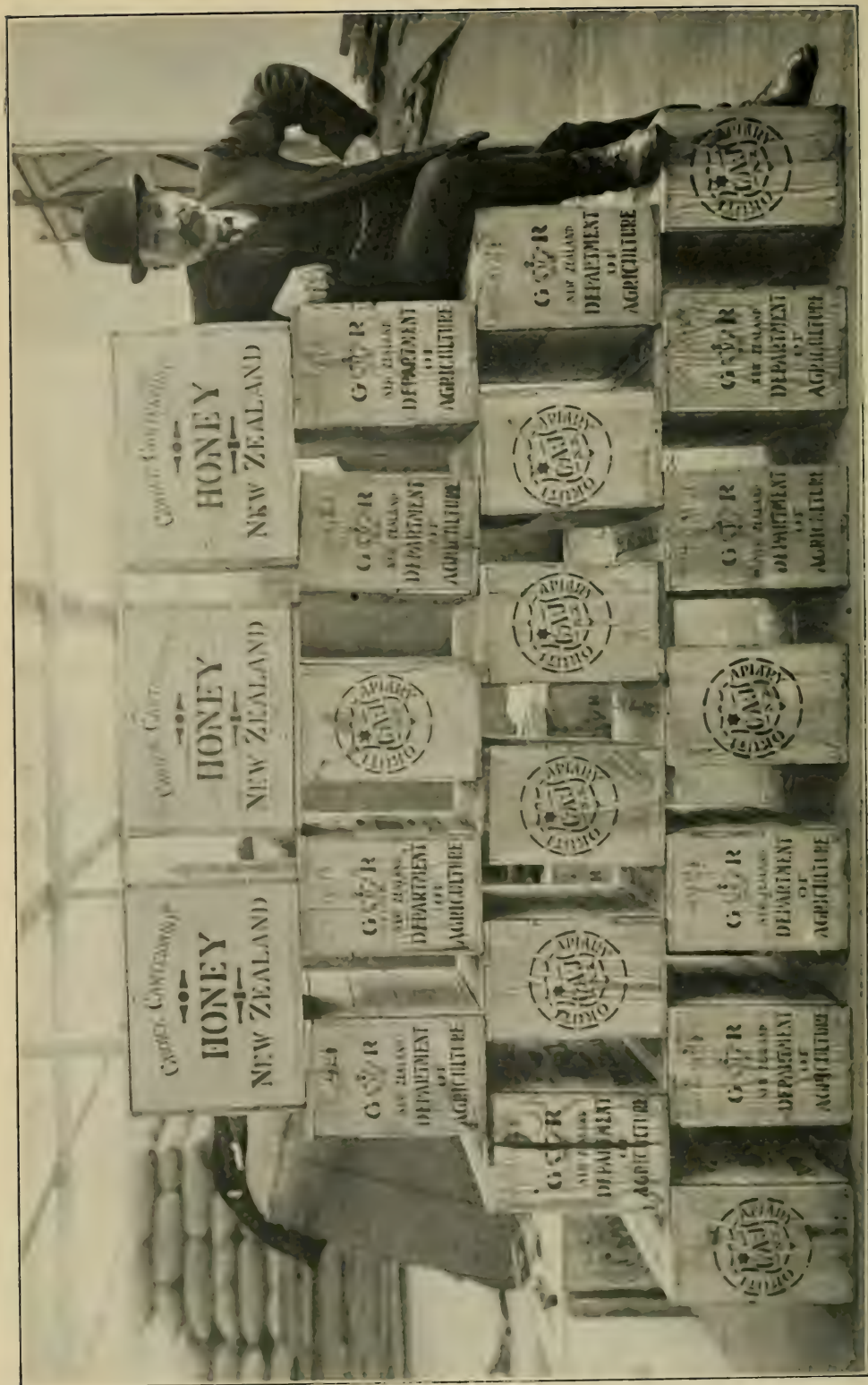


E. G. Ward, Christchurch, N. Z., Secretary of the National Federated Beekeepers' Association.

good prices being obtained. The fact of having the government grading mark will be a guarantee of quality; and as it goes under the supervision of the Federation, beekeepers need have no fear but that their interests are fully safeguarded.



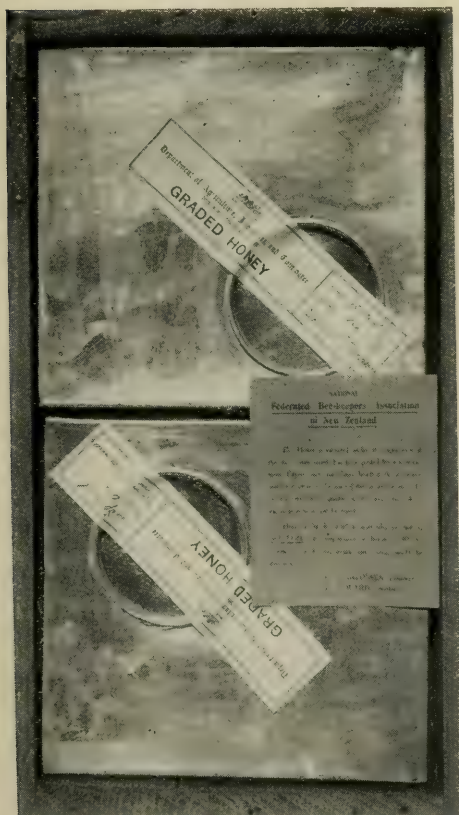
Honey exhibit by the Canterbury Beekeepers' Association at the chrysanthemum show, Christchurch, N. Z., April 7, 8.



Mr. C. A. Jacobsen, President of the National Federated Beekeepers Association, and part of the first shipment of honey. Each case contains 100 lbs. Mr. Jacobsen has conducted the negotiations with the firm of Montgomery & Co. for the Federation.

Inquiries are coming in daily to the secretary, and the success of the scheme seems to be assured. It is necessary that any one sending through this channel should endeavor by every means in his power to produce nothing but the best honey, and handle it in the cleanest manner. No unripe honey will be sent; and it must be in granulated form. The cases should be new and clean, bound with iron, and branded on one end with the initials only of the producer. Tins must be new and clean, and contain 56 lbs. net each, and packed two in a case. A sample must be sent first to the secretary for approval, and on approval the place to consign to will be mailed. It will then be graded by a government expert, and stamped, and then shipped as soon as convenient. Arrangements can be made for a cash advance when ready to ship, and centers other than Christchurch will be established when sufficient inducement offers.

Christchurch, N. Z.



Case of Honey graded and sealed with the N. F. B. Ass'n certificate attached.

SELLING HONEY TO RETAIL GROCERS

BY H. W. DOERR

Taking for granted that one has the bees, hives, and the necessary equipment, the next important thing is the honey itself. After I have the honey, the next step to take is to find out its kind and quality. In fact, I watch this point from the time the bees begin to store a surplus until the honey-flow ceases. I also keep tab on the honey-crop reports as given in the bee journals, and study the market quotations of the newspapers with the view of determining what honey of the same quality as mine would cost if shipped in from some other locality, and also what my honey would net me by shipping it to some other market.

Having fixed these two points clearly in my mind I proceed to fix my price by striking a mean between the import and export prices. That is, I make my price somewhat higher than the export price, and somewhat lower than the import price, because experience has taught me that it is safe, and good business policy, to do so. Right here let me say that it is of the utmost importance to have the price set on your honey before you offer it for sale. Otherwise the dealer will be slow in buying, and he will pay you just as small a price as he dares to give.

After the question of price is settled, and I have decided to put my honey on the market, the next thing that I do is to give some attention to my own personal appearance. This does not mean that I put on the best clothes in my possession, nor any display of style; but I do shave, and lay aside my daily working clothes for others which are neat and clean. Then I make a tour, interviewing the different grocers of my home town. When I step into a store where the owner is not known to me I inquire for the proprietor. Having found him, I usually ask him if he handles any honey. His answer generally is that he has none on hand at the present time. Then I ask what would be the chance of selling him a case of honey to be delivered in a week or so, naming my price, and stipulating that I will take a part of the pay in trade. This usually closes the deal for a case or more.

If I have had a good look around the store, and find no honey in sight before I meet the proprietor, then I sometimes ask him point blank if he has any honey to sell, to which he usually says he has not. Then, of course, I ask what would be the chance of selling him some honey, so that he will have some to sell. If he is a free talker I



Christchurch offices of the shipping firm of Montgomery & Co., who handle the honey for the N. F. B. Association of New Zealand.

let him ask me about the kind, quality, condition, and price, which I promptly tell him; but if he is somewhat reticent I do the most of the talking, explaining the kind, quality, condition, price, and terms of sale. In this way I seldom fail to land an order for future delivery.

I always sell on future delivery, for several reasons. First, if I have the honey with me for immediate delivery I never can make as good a sale as I can on future delivery. Second, if I have the honey with me for immediate delivery, and I fail to make a sale, I take too much of a risk getting it damaged by having to haul it home again.

I remember going into a store one time where the proprietor was not known to me, and every one connected with the store was busy. I had been in the store a few minutes when a friend and acquaintance came in and began to jolly me by wanting to know what I was doing in that part of town. I told that my business that day was selling honey.

"Oh! you keep bees, do you?" he said.

I told him I did. Then he began to ask questions about bees and honey. I answered his questions, and explained my way of producing honey. Before I got through, five or six others had come in and had joined in the conversation. Finally the proprietor became curious to know what it was all about; so he came up and listened until he found who the bee and honey man was. Then he asked me if I had any honey to sell. Certainly I had. Would I bring him

a case next time I came to town? Yes, I would. Thus I got his order without telling him the object of my visit.

When I go into a store where I am acquainted with the proprietor, and it is at the opening of the season, and I have sold him honey before, I simply ask him, "How is the honey business?" He usually asks about the kind, quality, and price, which I tell him, and I usually get his order. I never try to persuade a dealer to take a case of honey against his will or judgment.

My honey is all stored in one-pound sec-

tion boxes, and I market in glass-front single-tier shipping cases. These cases I leave with the dealer until he has all the honey sold out, when I take them back and refill them.

In preparing my honey for market I scrape the gum or propolis off as well as possible, and grade it carefully according to weight, color, and quality. I also make it a point to deliver at the appointed time.

My 1912 crop of honey was sold practically without any solicitations. In fact, a large part of the orders came voluntarily by telephone. And this reminds me how I have taken orders by telephone in the past. If I decide to sell honey by telephone I call up a dealer who knows what I have; and when I get him on the line I say to him, "This is Doerr, the honey-man. How about bringing you a case of honey to-day?"

If he is out of honey, or his stock is low, he will say, "Bring me in a case." If he is not quite ready for it he will say so, and name a time for delivery of the honey.

I find it a great advantage in making a sale of honey to take out part of the pay in trade, as already stated. I can make sales based on that sort of terms when otherwise I could not sell at all. If a man asks me to take out all my pay in trade I decline to sell, saying that he does not handle every thing I need, and must have cash to get them at other places. This statement almost always wins him, and I get his order according to my own terms.

I also make it a point to advise a dealer how best to take care of the honey and how



Bringing in a shipment of 11 tons from the railroad siding, to be graded. The cases are opened ready for grading, and the government grader (in center), Mr. L. Bowman, ready for work.

to display to the best advantage for the purpose of bringing it to the notice of a prospective purchaser.

Most dealers like to talk bees to some extent; but their conversation is of an interrogative nature. Some want to know what the king bee does, and what position he holds in the society of beedom. I tell them that the head of a colony or swarm of bees is not a male but a female, and is known as the queen, and that in reality there is no such thing as a king bee. Moreover, the queen ordinarily is the mother of every bee in the hive of a well-regulated bee family, and is the only bee in the hive capable of living more than a year, and that the well-being and prosperity of a colony of bees depends upon the prolificness and health of the queen.

On the other hand, there are some who want to know if those big fat fellows which one sees hanging about the entrance of a hive on warm summer days are king bees, and then I explain about the drones. Sometimes I run across a fellow who has the artificial-comb-honey bogie in his head, and he will go to considerable length trying to

show that there is such a thing as artificial comb honey. I call his attention to the fact that The A. I. Root Co. has been offering one thousand dollars for a pound of artificial comb honey that can not be detected from natural comb honey, and that this offer has been standing over twenty years, and so far has had no takers; but if he has the goods, or can get them, the money is worth the effort. So far no one has offered to produce the required pound of artificial comb honey.

I also find it advantageous to study the different temperaments of the various dealers. For instance, if I meet a man who is lively and full of fun I jolly him or tell him a funny story. On the other hand, if I meet a slow-going steady man, I don't rush him, but give him all the time he wants, and make only such remarks as are necessary for the intelligent transaction of business.

Thus I keep up the interest in my stock in trade, and the sales continue to increase, until to-day the demand is greater than the supply.

Beardstown, Ill., Feb. 24.

SELLING HONEY FROM HOUSE TO HOUSE

BY A. L. BEAL

To my mind the most delightful thing about the whole bee business is to sit and watch the bees work when there is a good honey-flow. For tired nerves and a fagged-out brain there is nothing better. It is an inspiration to any one. A few days of watching the bees will put even a person of poor health in a good condition for "marketing honey," which is the next most delightful thing in bee work, and almost as healthful as watching the bees. I have never found more than one discouraging feature in marketing the honey; and that is, it is so soon sold, and so many people are yet wanting honey. The oddest thing about it is, the more you sell, the more people will be wanting it when you have sold out.

I believe that I know exactly how the ordinary beekeeper can market his honey, and at a fair price. I have had several years of experience in selling produce direct to the consumer, and I never represent what I have to sell as having qualities which it does not have. I always try to avoid exorbitant prices, and to be strictly conscientious in every thing, and so when I commenced selling honey two years ago I had no trouble at all.

Get some Mason glass fruit-cans, pint and quart size. Fill them nearly full of comb honey, and pour in liquid honey until the pint weighs $1\frac{1}{4}$ lbs., and the quart $2\frac{1}{2}$ lbs. Be sure to have the cans full. A little practice will enable you to know just the proportions of comb and liquid honey to put in so the can may be full and of the proper weight. Then take a few more cans of each size, and fill them with liquid honey. They should contain by weight, pints, $1\frac{1}{2}$ lb.; quarts, 3 lbs. If you have a few pound sections that weigh 12 or 14 oz., get some of those too.

Load all these in your rig and start for town. Any town will do, but the bigger the better. Stop at the first house, and take as large a can of the bulk comb honey as you have on the wagon. Holding up your can, say, "Good morning, Mrs. A. Are you a lover of good honey—honey that is honey—real old-fashioned bee honey?"

Keep holding up the can, and change its position and keep talking. But do not talk all day. Let her ask the price. Then you can tell her it is 20 cts. per lb., and $2\frac{1}{2}$ lbs. in a can. Be sure to say it that way. If you have ever been an agent you have learned the great power in certain combinations of words. Never use the term "half

a dollar." Well, it may be that Mrs. A is not fond of honey—doesn't know how good it is, and doesn't wish to buy. Then leave as politely as you can. Do not urge her to buy. Before your next visit to town she may have heard how good it is, and be watching for you.

Mrs. B is quite fond of honey, but has only 25 cts. about the house. Sell her a small can. Get your can back or an empty one in its place.

Mrs. C doesn't like comb at all, but would be "awfully glad" to get some "strained" honey. Sell her two cans—quarts, of course—and take the pint on to Mrs. D, who is short on change.

Mrs. E always gets it in "these little boxes." Sell her a light weight for 20 cts.; and so on down the line to X Y Z if your honey holds out.

Tell them all you will be back, and don't forget to go back, for most of them will eat all the honey long before the appointed day.

Westfield, Ind.

ADVERTISING PAYS

A Producer who has Spent Several Thousand Dollars in the Past Four Years in Advertising

BY R. M. SPENCER

What would it mean to all the beekeepers of the United States if the price of their honey should be raised 1 ct. per lb.? It would mean thousands of dollars, and, in many cases, put the bee business on a more profitable basis. Many will say the supply and demand regulate the price. This no doubt is true; but it does not mean that we can not increase the demand. This can be done by producing a first-class article and creating a demand by advertising.

To obtain these higher prices, all apiarists should endeavor to produce a better and riper grade of honey that has the quality behind it to bring the repeated orders from their customers.

All honey of the best quality and grades should be advertised under a trademark, thereby giving it a name for the customer to remember and order by. As long as the quality is held up, the business would about double each year.

I have spent several thousand dollars in advertising honey in the last four years, and know by experience that the orders will double each year from the same territory. Mrs. Jones orders a case of twelve 10-lb. cans of my best honey. She sells one can of it to Mrs. Brown and various other women; and if the goods are all right these neighbors are sure to want some of it.



THE DASHEENS IN A. I. ROOT'S FLORIDA HOME ABOUT APRIL 1.

The above picture was taken by one of our beekeepers who happened along at our place—Mr. H. T. Gibson, Wilmore, Ky. The dasheens shown in the picture were those sent me by the Department at Washington. They were planted about Jan. 1, but did not show above ground much until about Feb. 1. The tubers are somewhat slow about starting, and the plant itself does not make very rapid growth until settled warm weather, for it is a tropical plant. I hope to be able to give another picture, more up to date, in the near future.—A. I. Root.

In building up a mail-order business for honey, great care should be taken to please the customer. All prices should be plain, freight prepaid if possible, and instructions inclosed to all buyers to pay all overcharges of freight, if any, and that you will refund the same, which should be done at once on receipt of freight bills. If the above rules are not carried out, in many cases the customer will refuse goods because of small extra freight charges demanded by the railroad company.

All honey should be put up in a very attractive package, which means half the sale, as customers are always willing to pay a little more for goods put up under an attractive label.

Many beekeepers in this vicinity claim that the advertising of honey is not a poor man's proposition. This is where they are in error. If the honey has the quality behind it, it can be advertised in a small way at first, and in a very short time create a good demand. Look at some of the leading brands of food products that are to-day advertised, and millions of dollars' worth sold each year at fancy prices. Why? Simply because the manufacturer has produced

a first-class article and created a demand for his goods. He has made the customer want his goods and come to him for them. There is no question in selling honey but that, if every beekeeper or even one-fourth of the leading producers would get together and spend ten cents per hive every year in advertising and creating a demand for the honey, sales would increase as well as the price, and it would be a very profitable investment for all. In co-operation there is strength, and there has never been an advertising campaign of education of as good an article as honey that has failed where properly managed.

Most beekeepers figure on a wrong basis for money spent for advertising. If a beekeeper produces, say, ten tons of honey a year on an average, which he sells for \$140 per ton, suppose he spends \$100 per year in advertising the honey and sells it at \$150 per ton net to him, he will figure that he has got his advertising money back, but has done the work for nothing, which will be true for the first year, while the second year he will continue to get orders; and by spending \$50 he will sell more honey than he did in the first year. Thus the business

will grow every year; and by the fifth year he can sell five times the honey on the same amount of money for advertising.

The main idea in selling goods to any customer is to make it as easy as possible to buy. Experience has shown me that "c. o. d." and order bill of lading shipments with sight draft attached, pays. This allows a customer to go to the depot and examine the honey where he can see that the goods are all right and up to the sample sent him. I find that the refusals of such shipments amount to less than one per cent of all orders shipped.

My experience has been that the best size packages are 2-lb., 10-lb., and 60-lb. cans. The 2-lb. cans can be used by a retailer in stores, etc.; the 10-lb. can by agents who sell the honey from house to house, while the 60-lb. cans are suitable for families who consume quite a lot of honey each year. I think it is a great advantage to have as few grades as possible. If all grades were mixed together, thus making a white honey, it does away with sending samples of different grades, and customers always know what each shipment will be.

I send out samples at 10 cts. each by the thousands each year, and large sample packages weighing one pound at 20 cts. each to customers desiring to sell the honey by sample. I also have printed rules as to how I grade my honey, as follows: A water-white honey; objects can be seen for 50 feet through a one-inch bottle, such as man, etc. Printing can be read through the same bottles for white grade, etc. There is a big future for the sale of first-class honey, which can easily be developed if properly handled, and I hope to see the day when it is sold in this way.

Nordhoff, Cal.

COMPETING WITH HONEY DELIVERED FOR SIX CENTS A POUND

BY LEON C. WHEELER

The article on page 691, Nov. 1, 1912, by Frank C. Pellett, reminds me of my struggles to develop a honey market. I had a proposition to deal with, however, which was altogether different, for my competitor was selling extracted honey at 5 and 6 cts. a pound, and was delivering it at the door. I too wished to produce extracted honey; but I had no desire to sell it at any such price as that. Comb honey was no better, as it brought from 10 to 12 cts. a pound in the local markets.

The first year I had hard sledding to sell any honey at all at the price I was asking, which was 8 cts. a pound for extracted. My

competitor was selling at six, the same as before, and had already established a trade. His method of extracting, however, was against him, for he extracted his honey just as fast as it was carried in, which made it rather insipid, and there was danger of its spoiling entirely. Nobody thought any thing of that, however, as that was the kind of honey they were used to. Well, I took a lot of pains to get my honey well ripened, and to keep the dark honey separate from the light, and started out that fall to try to sell it. The price was too high, and I made very few sales, and those were mostly to people who wanted a little to last them until they could see the other fellow and buy their supply for the winter. I suppose I was criticised considerably as being pig-gish in trying to get so much for my honey.

I didn't have a very large amount of honey that year to sell, and some way I managed to sell it all; but the next year there was quite a lot more to dispose of, and I felt some fears as to the outcome. At that time I knew nothing of trying to sell in the city. My competitor, in the meantime, had boosted the price to 7 cts. He had learned a thing or two. I took his bluff, and raised mine to 9 cts. This time I was agreeably surprised to find that I could sell in a good many more places than before. Nearly all of those who had bought of me the year before were ready to order their year's supply of me that season. There was lots of kicking on the price; but in the end they would buy my honey. They would come at me about like this: "I like your honey much better than Mr. N.'s, but it seems to me your price is awful high. Why is it you can't sell just as cheap as he can?"

My answer would be something like this:

"The reason you like my honey so much better than Mr. N.'s is because I leave it on the hive to ripen, and because I take pains to put up only a good article. This makes it more expensive to produce, and I have to charge more for it. If it isn't worth the two extra cents I don't want you to buy it."

I found a few who preferred to take the cheaper honey at the smaller figure; but the good honey won out in most cases, until to-day I am selling in four out of every five places. My prices now are made according to the grade, with the average at ten cents for extracted.

There are too many small beekeepers and too small a town here to make any very great sales of honey locally, although by peddling and bringing it before the people there is a chance yet to increase the trade considerably.

As time went on I took to following the

fairs, and found it so profitable that I have kept it up ever since. At the State fairs and all large ones it is no trouble at all to sell comb honey at 20 cents per section, and extracted honey in 1-pound jars at 25 cents per jar. One gets in touch with all the fancy dealers too, and a great many who buy for their own consumption, until now it is not a question of "Where can I sell my honey with profit?" but "Where can I get the honey to fill all the orders?" This puts me just that much nearer the consumer. In fact, most of my honey is sold direct to the consumer, and the rest of it to fancy dealers who retail it. I have several customers who have already spoken for honey to be put up purposely for them next year to the amount of 500 to 1500 or 2000 lbs. each, at a figure that nets me 12½ cts. per lb. for extracted. This makes a good bargain for them, as they are securing a choice article at a reasonable figure, and at the same time I am getting more for my honey than if I were to sell in the ordinary way.

Barryton, Mich.

SELLING COMB HONEY BY WEIGHT

BY R. A. BURNETT

Mr. Root:—On p. 140, March 1, in *Stray Straws*, selling comb honey by weight or by the package is taken up both by Dr. Miller and yourself. While I may not be able to dispel the haze, I will endeavor to put certain facts before yourself and those concerned.

In Illinois the law as interpreted by the legal department of the city of Chicago (with whose representative I talked yesterday) is that any thing that implies weight must be sold by weight; but a package sealed, such as the Uneeda biscuit, can be sold as such without reference to weight; but if the purchaser asks for a pound of crackers and is given a package that weighs but six ounces, the vender is liable to a fine of from \$25 to \$200, or thereabout.

Last summer on this market several commission men were arrested for selling baskets of fruit, say of peaches, that were called pecks, half-bushels, and bushels, but which when weighed and the receptacles measured were found to be scant. Fines were imposed upon the sellers for the reason that the purchaser had asked the price of a bushel of peaches and were sold a basket said to contain a bushel.

While we have not learned of any arrests for selling a case of honey containing 24 sections representing them to be pound sections, but in reality weighing less than 24 lbs., yet we infer that the offense would be

similar when the buyer asks for a case of honey containing 24 pound sections. There are very few dealers who will buy a case of honey unless guaranteed that a certain net weight is contained therein.

Dr. Miller asks if there is any likelihood in the near future that there will be uniformity. Replying, I would say that uniformity is desired by all of us, if for nothing else than the eliminating of labor and confounding of terms. Yet there are few of us who can read accurately what is going to occur in the future. We think we see certain results; but as they are about to be realized, a new phase of the difficulty arises, and once more the certainty becomes an uncertainty.

The writer, in reviewing the history of more than thirty years in vending honey, is of the opinion that the mind of man is quite uncertain. To illustrate is quite unnecessary, as persons of middle age will have learned that in their experience.

We speak of a wood frame that is made so that it can contain 16 ounces of comb honey more or less. When the seasons are favorable, and intelligent manipulation is given to the frame, the weight of each approximates 16 ounces, usually spoken of as one-pound sections, but that the section may contain only half of this amount is also true.

In Colorado or the Rocky Mountain region it seems that the producer can come more nearly to a given weight in sections than in any other part of the country; and I have been told that the reasons are that the bees gather about so much nectar each day during the working period, the beekeepers use separators and other means for guidance of the bees in storing, and the apiaries are large enough to enable the apiarist to select sections of about an even weight and pack them in a case so that a number of cases will not vary more than a pound each, many of them being the same weight, so that the seller can say that his lot of honey averages 21 lbs. net to the case, or that there is a lot that averages 18 lbs. net.

Now, as a matter of fact, isn't this selling honey by weight when a given amount is guaranteed? What has been said applies chiefly to the producer and wholesaler. Retailers differ in their method of selling honey. Some will buy five or ten cases of honey containing 24 sections each; will pile it up on the counter or in a showcase, and sell by the section. If the honey has been graded as would be necessary under the Colorado rules, the difference in weight would not be more than from one to two ounces; but if it was under the eastern grading

rules they might vary from one to ten ounces, and in that case the retailer sells at so much a section until the heavy weights are sold out, say at 25 cts. per section, then he reduces the price to 20 cts. per section, and finally to 15 cts., to close out the light weights. Therefore it is the opinion of the writer that the true method is to buy and sell by weight; and to transact business legally in this State he has no alternative.

It is true that he may sell 100 cases of honey containing 24 sections each at \$4.00 per case if he guarantees that none of the cases will weigh less than 20 lbs. net, nor exceed 21 lbs.; but after all, weight is the basis of the transaction.

Chicago, Ill.

[The pure-food law was modified at the last session of Congress, the modification having to do with marking the weights on food packages. See the article by J. E. Crane which follows.—Ed.]

THE NEW LAW REQUIRING NET WEIGHT TO BE MARKED ON FOOD PACKAGES

BY J. E. CRANE

It may not be generally known that an amendment to the pure-food law was passed at the last session of Congress, and signed by President Taft on March 3. This amendment makes it obligatory on those putting up food for interstate commerce to see that the quantity of food packages be plainly marked on the outside of each package in terms of net weight, measure, or numerical count. This amendment does not become a law until eighteen months from March 3. This will be comparatively easy in the case of extracted honey; but who shall say just what the net weight of a section of comb honey is? Will it include the comb as well as honey? Most likely. But how about the rim of wood around the comb, or the carton or glass that is used to keep the dust and flies from soiling the comb?

The committee appointed by the secretaries of the Department of Commerce, the Treasury Department, and the Department of Agriculture, to draw up regulations for the enforcement of the new net-weight law announces that it is now ready to receive in writing recommendations and suggestions.

Middlebury, Vt.

[In a press notice sent out by the U. S. Department of Agriculture, the new national net-weight law is quoted. We give herewith, in full, the paragraph in question:

A food product will be deemed to be misbranded: "If in package form, the quantity of the contents be not plainly and conspicuously marked on the outside of the package in terms of weight, measure, or numerical count; provided, however, that reasonable variations shall be permitted, and tolerances and also exemptions as to small packages shall be established by rules and regulations made in accordance with the provisions of section three of this act."

From the above it appears that there should be no great difficulty in obtaining a ruling that will apply to comb honey.—Ed.]

BEEKEEPING IN NEW ZEALAND

BY E. G. WARD

Mr. R. N. Gidley* started beekeeping five years ago with a few colonies, and had fair success. The last two seasons have been exceptionally bad in most parts of New Zealand, 1911 and 1912 being about the worst in 20 years. Mr. Gidley went in for increase more than for honey during this bad season, and, in addition to getting no surplus, had to feed $\frac{1}{2}$ ton of sugar to carry the bees through the winter. This was done at his home at Fendalton, near Christchurch, and in the spring 1912 he moved his bees to Lakeside, about 27 miles away, taking them in a spring cart, principally during the night. Several trips were required for this, and he got them all there about the end of October. This was too late for the willows, which are plentiful round about there. The season up till the middle of November was very poor, and it was necessary to feed, as we had a lot of cold wet weather. From this on all through till now (March 9), the weather has been ideal. The spring count was 75 hives—increase 25. The crop for the season totals 9856 lbs. extracted honey, and 100 sections. The 25 increase will go into winter quarters on six or seven frames.

In addition to the honey stored, 1500 half-frames have been drawn out, and 600 full frames, so it will be seen that, if the same number of combs had been on hand, the surplus would have been much greater. The colony in the tall hive shown in the engraving on page 374, June 1, gave 417 lbs. by the end of the season. The bees were shaken on full sheets of foundation on Nov. 8, and a full super of drawn comb was added, as there were eggs in the queen-cells. This settled the swarming, and during the season they have pulled out five half-supers and one full super of foundation. After the first extracting, the combs were put back; and the total yield has been 417 lbs., and no further attempts at swarming.

The four best colonies gave as follows:

* Various views of Mr. Gidley's apiary appeared in our June 1st issue.—Ed.

417 lbs.; 275 lbs.; 257 lbs.; 235 lbs.; total for 4 colonies, 1184 lbs.

All these are leather-colored Italians. Mr. Gidley finds the leather-colored ahead of the golden every time.

Christchurch, N. Z.

ADVERTISING UNTIL THE CUSTOMERS COME TO THE HOUSE

BY GEORGE SHIBER

Continued from page 446.

veil or gloves on;" or "Why, I have seen Shiber pick up bees by the handful and not get a sting," etc.

But what of that? I don't care a cent about the wonder expressed by people to think I can handle bees. *But I do want them to know I have first-class honey for sale.* And when the public knows it, the honey-producer will have a little co-operation of one member, and will be profiting by it until the larger co-operation comes along. But don't think I am throwing rocks at the co-operative plan.

Another thing we used to do, and that was to retail it from the tank—that is, sell one, two, or as many pounds as a customer wanted. It did not pay. Another reason, honey does not keep its fine flavor long, as there is a large space for air at the top of the honey; and it hurts the flavor, even though you have a tight cover on.

Randolph, N. Y., Oct. 5.

LONGEVITY MEANS A SHORTER PERIOD, RELATIVELY, OF NON-PRODUCTIVENESS

BY LEWIS P. TANTON

In a recent issue you invite opinion upon Mr. Doolittle's suggestion as to the importance of bees being long-lived. I submit that there is no quality in the bee of to-day more desirable to select and cultivate than hardihood coupled with length of life. From the egg to maturity, 21 days, the bee is a consumer. Fourteen days further it works within the hive, still consuming—a total of 35 days a non-producer. Deducting for bad weather, intermissions in the honey-flow, and a decimation of numbers by birds and accident, it is safe to estimate that the average working days of the bee (in the honey-flow season) will not exceed 30. Within that period this little worker must produce food to supply its successor during the 35 days of its incubation and development, food for its own maintenance, provide sufficient stores to last at least six months in winter, and to contribute what every beekeeper is looking for—a generous

surplus. From these facts I argue that every hour we can add to the working period of a bee's existence is a positive and untaxed profit. To illustrate this:

I imported a beautiful yellow queen and introduced her to a three-frame nucleus. As a producer of handsome and busy yellow workers she eclipsed any thing I ever witnessed. The frames filled from top to bottom and to the outer edge with healthy brood. I allowed her to increase until three body supers were full of brood and bees. I christened her my "thousand-dollar queen," and the only difficulty ahead was how to get so many bees into a compass small enough to winter. At the close of the season I reduced my appreciation of her value down to fifty cents, and she was worth that appraisement only for the lesson she taught. There was scarcely any honey in the hive. All had been consumed in brood-rearing, and there were not enough bees to fill one super fairly. I fed them; but in spring all were dead. The bees were good workers, quiet and healthy, yet short-lived, and, as a result, their whole period of field activity was insufficient to produce the surplus of stores, and what I would call the surplus life necessary to maintain the healthy existence of the colony.

This view of the question revives inquiry as to which is the best race of bees. The Italian, because of its adaptability to the largest area, the uniformity of its character for docility, and its reputation for industry, coequal with that of any other race, has won for itself the largest number of admirers. The great Creator in his infinite wisdom had the same just measure of the world's requirements in shaping the bee as in the other countless forms of life, and each of their varied forms and characters was destined for a work which the other was not adapted for.

Place my beautiful yellow prolific queen in an equable southern temperature with an abundance of nectar near at hand, and confine her brood-chamber to one or at the most two supers, and her value would not have met such a sweeping and spontaneous discount. In rugged mountainous localities where the bee is up against hardship and every variety of weather and climate, the Italian does not boast of so many friends. In the northern portions of Maine, in all the colder sections of Canada and the Northern States, the black bee or its crosses are the most in favor. Even in places of moderate temperature the three-banded and the leather-colored are recognized as the most profitable and reliable.

Now, why is it that the German bees succeed in certain localities so much better

than the vaunted Italians? They do not work as early in the morning nor as late in the evening; they carry on an average less brood in the hive, and yet in the end they produce as much surplus honey as other races would do under like conditions. I have not tested for myself, but I strongly suspect that the secret lies in the longer life and in the more extended working period of the black bee, and because less of the worker's labor is expended in the raising of brood and young bees, to die out again almost before they have gathered honey enough to pay for their keep.

There seem to be features in the character of bees suggestive of their nativity. Why do the black bees hasten under cover quickly at the approach of darkness, or when clouds loom up? and why do they scamper nervously away and drop like molasses from the combs when being handled? Is not this indicative of a boisterous place of origin and a desire to get in out of the cold or to escape impending storms? The Italian, on the other hand, is quiet and tractable, spreading itself evenly over the comb, and continuing its work almost regardless of disturbance. Is not this an exhibition of its inherent confidence in the blue skies and the balmy atmosphere of its native Italy?

Concluding, I am impressed with the belief that breeding for longevity and hardiness should call for the best skill of our apicultural specialists. I would further suggest that dogmatic conclusions as to the value of any particular race of bees for universal use be set aside, and a study of the adaptability of the different races to special localities be taken up. These features being satisfactorily understood, our bee journals, advisers, and supply-houses, instead of dumping their own favorite and probably successful race upon us would enrich us with bees suitable to our locality and our needs.

Charlottetown, P. E. I., Feb. 1.

OPEN-AIR FEEDING

BY MAJOR SHALLARD

I have been much interested in your plan of feeding, given in the A B C and X Y Z, by hanging kerosene-tins with perforated bottoms up in the air. But you state in the same place, "If the syrup were fed in open cans, thousands of bees would be drowned." This is not so. I once had an apiary of 250 colonies where the crop had gone off right in the middle of the season. The hives were short of stores, and the queens were ceasing

to lay. I knew this would not do. As it was an out-apiary I had no time to go to feed each colony individually, so I put out three of the largest galvanized iron washing-tubs, put the end of a kerosene-case in each for a float, spread a large sheet of hessian (coarse sacking) over the whole lot, leaving enough sag to allow it to go right to the bottom of the tub when it was empty. I filled the tubs to the top with honey and water, half and half.

I never saw more than a dozen or two dead bees in any of the tubs at any time. The hessian would float on the board, and the capillary attraction would wet it right up to the edge of the tub, even if the latter was half empty; consequently the bees had a large surface to alight on, and they did not get drowned. For that matter there was no place to get drowned, as there was no pool of honey anywhere, except the damp hessian. There was no robbing, although the tubs were put right among the hives. Before I had quite finished giving them the amount I had arranged for, the honey-flow started and the tubs were deserted.

It paid me well; and while I had a good population in each hive, and got a good crop, my neighbors' bees built up only strong enough to go into winter quarters, and got no surplus at all.

You will probably say they would have robbed if the flow had not come on. I do not think so. I think they would if the tubs were removed; but if left there they would simply visit them until they were thoroughly satisfied there was no more honey there, and then they would settle down.

If a comb of honey is left out and the bees begin robbing it properly, remove that comb and you will cause robbing; but leave it there and let the bees empty it, and when they are satisfied that the honey is all gone, they will abandon it and will settle down quickly.

If a half-story of honey is left out and forgotten while taking off the honey to extract, and I find the bees starting to rob it, I get it away quickly; but I put another half-story, with a little honey on it, in its place. Let them satisfy themselves that there is no more, and they will go away; but take it away, and they go looking for it and start robbing the other hives.

South Woodburn, N. S. W., Australia.

Rope Attracts Swarms

I had a queen among eleven whose eggs would not hatch this spring. I also notice that bees in swarming will be attracted by a rope wrapped on a limb or bush if placed in a conspicuous place.

Elizabeth, Pa., May 5.

W. T. FUEHRER.

Heads of Grain from Different Fields

Grading Extracted Honey by Means of a Standard System of Colors

The matter of grading honey correctly is a question of paramount importance to every one handling either comb or extracted honey. Mr. G. F. DeMuth, of the Bureau of Entomology, is quoted in your report of the National Association at Cincinnati as suggesting a scheme of colored cards to be used as a standard of comparison by which to describe any grade of comb honey as to color. This matter of a standard color-guide has been in my mind for some time; and since the subject has been broached publicly I am prompted to give my idea in the form of a suggestion relating to extracted honey only.

When extracted honey is viewed by transmitted light (that is, by the light through the honey), the color is lighter when the body of honey is small, and darker in proportion to the increase in the body. This, in the first place, suggested to my mind the advantage of always viewing the specimen through glass containers having the same diameter or distance through, so that, whether the specimen be light or dark, its actual color is shown to a certainty, and sample after sample can be compared to a nicety.

When this idea had been well considered I could not but marvel that the business of judging the color of honey has been done in the haphazard way it has ever since extracted honey has been a marketable product. The general use of a standard prescribed container for observing honey to be judged, say a test-tube $\frac{3}{4}$ inch in diameter, would put the question upon a fairly reliable universal basis. Assuming that this were done, there yet remains the human factor to be considered, for the specimen naturally looks to the seller much lighter than it does to the dealer. The possibility of a dispute or at least dissatisfaction can be avoided by the use of an accepted standard color-guide, to be viewed alongside the honey contained in standard-sized test-tube.

It seems to me that it would be appropriate for the National Association to select and make official and standard such a scale of colors made in glass (which is most unchangeable), the original to be kept by the secretary as the standard. The Association could supply certified duplicates to all who might desire to purchase. Every producer of extracted, and every dealer, should be provided with such a means of grading the product properly beyond question. Such a color scale might be made a permanent part of the standard-sized test-tube, thereby simplifying all operations.

The matter of grading extracted honey would be thus made an exact science. Any person not color-blind could grade honey. The seller could know exactly his grade before shipping, thereby avoiding any hocus pocus by the consignee. The demand for extracted honey is increasing, and the importance of standardizing the method of grading increases correspondingly; so that it would seem that this is a matter deserving attention and action.

New Jersey.

C. D. C.

Comb and Extracted Selling for the Same Price

I started about ten years ago with two stocks of bees, because I had a piece of land of about two acres on which I grew small fruits such as strawberries, raspberries, and black currants. I also had a small orchard of plum trees. I had a shop in the main street of the town, so I thought if I was clever enough to get any honey I should be able to sell it retail over the counter and get full price for it. I have gradually increased my apiary from two to 33 colonies of bees because I found I could make it pay, and also sell all the honey I could get. When I started I made up my mind to master the practical side of beekeeping; so I joined the county associa-

tion of beekeepers, bought the British Beekeepers' Guide-book, the A B C and X Y Z of Bee Culture, and read up all I could about bees. Each year I have bought more books and have taken bee journals regularly, so as to glean all I can about the theory and practice of beekeeping.

I can sell at retail all the honey I can get, and most years have to buy some more in order to supply orders. It is put up in $\frac{1}{2}$ and 1 lb. screw-capped bottles, and is sold at 24 cents per lb. I also sell the sections at the same price. The seconds, or those off grade, are all eaten at home. I make a profit on an average of about five dollars per hive each year, and some years more. This year was the worst for several seasons, the average yield of honey being 15 lbs. per colony. Last year my average yield was 40 lbs., the highest individual hive giving 72 lbs.

My district is the noted fruit-growing district of Evesham, in Worcestershire, and stretches for several miles on either side of the town. The farms are gradually giving way to fruit culture and vegetable-growing, so you see my honey is a mixture of fruit, honey clover, raspberry, peas, beans, etc. The fruit blossom comes early, and the bees build up quickly, and some years fill a super on each hive from fruit blossoms. I do not get any light honey around here. It is generally medium-colored, of a good consistency, and rich, thick, and of good flavor.

I have gone in for showing, and have taken two silver and three bronze medals, and about 35 money prizes, mostly at local or county shows. The exhibiting is a great help in selling my honey; and if I have a big lot I advertise in the local papers, and give a guarantee with every pound of honey.

WM. J. WOOLLEY, JR.

Evesham, England, Dec. 2, 1912.

Sending Honey by Parcel Post

On p. 94, Feb. 1, I note that different packages are used in Europe for sending honey by parcel post. I have been sending honey thus for about three weeks, and have mailed about one can a day. One 11-lb. can was sent to the third zone; some were also sent into Massachusetts. All report that it goes through well, and that the honey is fine. Of course I am sending out nothing but the best of honey.

I am using a can made in Franklinville, N. Y. It has a $2\frac{1}{2}$ -inch screw top, and is tight when screwed down. I make a light wooden crate. The ends are $\frac{1}{4}$ thick, and the size of the can ends. I then nail two strips on a side about $\frac{1}{4}$ inch from the corner. When it is all nailed I tie a strong string around each end just back of the end; and as I nail the strip a little from the corner, the end corner sticks out so that the string can't slip off. I have some strips of tin 8-16 wide, and long enough to go around after it is all nailed, which I intend to try.

What we want is a reduced rate. It is quite surprising to see how short a distance a 50-mile zone is when you want to send a package. It is necessary to take the precaution to have every thing tight and in good shape. I have been wondering how far one of these packages would go safely.

Dexter, Me., Feb. 6.

A. R. BODGE.

Alfalfa Honey Usually Granulates Quickly

May 15, p. 329, Mr. J. E. Crane stands corrected about alfalfa honey granulating. We know from many years' experience with it that alfalfa honey granulates the quickest of any kind we have ever had any thing to do with. Our experience started in Wisconsin; after which we spent thirteen years in Michigan, two in California, five in Nebraska, and for seventeen years have been in Colorado.

Sedgwick, Col., May 22.

GAIL CROWFOOT.

Eggs and Young Larvæ Do Cause the Disappearance of the Virgin; a Supporter of A. C. Miller

The above has reference to p. 796, Dec. 1, by Arthur C. Miller. I reckon I owe him something for that article. I have been losing more young queens for years than I liked. I never could understand why, and we had been told so often to give young brood, and not warned *not* to give eggs, that it had become a fact in my mind that it was the proper thing to do.

I have had many people apply to me to know why their young queens disappeared, and I could not tell them. No doubt it was the eggs. What the writer says about Henry Alley waiting three days before giving a cell is like an illuminating lamp to me. When I first started beekeeping—in fact, before I owned a hive—I read and digested "Manual of Beekeeping" by John Hunter. In this book he says, "After removing a queen, do not give a cell for 72 hours." He said he did not know why, but 72 appeared to be the magic number of hours to wait. For years I acted on this advice, and gave no cells for three days.

These were ripe cells reared on the Alley plan, and they would hatch within a few hours of insertion. After pursuing this method successfully, and not losing more than Mr. Miller says is the correct percentage, the cell-protector was invented. I adopted it to save those three days, and I lost anywhere from 25 to 50 per cent of my queens.

Even then I did not see what the trouble was. There might not be any thing in Mr. Arthur C. Miller's contention; but it looks feasible enough to me, and I am going back to the three-days' wait, keeping all eggs out of a hive containing a virgin.

MAJOR SHALLARD.

South Woodburn, N. S. W., Australia.

A Satisfactory Experience as a Helper in the Empire State

The account of the treatment of employees on a California ranch as given by "Subscriber," page 58, Jan. 15, contrasts strongly with the treatment of employees in the Empire State—at least such has been my experience. It was my privilege to spend most of the season of 1912 with a professional beekeeper of Tompkins' Co. I began my duties about April 1, and was well received and splendidly treated from the first. I received \$25.00 a month, with room and board, and ordinary washing included. I was given a very comfortable room, and the board was fine; in fact, had I been a member of the family I could not have been more generously used.

The work at the yards, of which we ran ten, was strenuous, and I was made to feel that I was expected to earn my money; but that, of course, was no more than I anticipated.

Only once during the summer was I sharply reproved. That was when I set an upper story containing a queen in deep grass. As I had been repeatedly warned against doing this, I did not blame my employer for speaking quickly. Of course there were several mistakes which were corrected by my employer, but he usually spoke quietly, and very rarely allowed his temper to manifest itself.

I left my place in September, feeling that I had spent a profitable as well as pleasant season. As I anticipate entering the bee business, the experience gained will be a great help to me.

Spencer, N. Y., Feb. 6.

"SUBSCRIBER."

A Correction

My article, page 335, May 15, is different from what I wrote. Where it reads, "If no cells were started at the time of removing the queen, removing the two combs once," etc., it should read: "Removing the cells once is all that will be required before returning the queen and brood."

Honey, c Falls, N. Y., June 7. A. C. GILBERT.

Photographs of Swarms, etc., an Aid in Selling Honey

For the benefit of those who have any trouble in disposing of their honey I should like to suggest a little scheme that helped to a very great extent in securing orders in about nine out of ten stores in which I solicited.

By means of a camera, and with the help of the bees, here is my plan:

During the summer I take a few pictures of bees while clustered on the tree after swarming, or of different manipulations which will prove very interesting, and hold the buyers' interest. These help considerably, and will keep you busy answering some of the extremely laughable inquiries that people will sometimes ask in regard to bees.

When I first started in I took care to let the grocer see me whenever I was stung, thus proving that I was a beekeeper.

Chicago, Nov. 2.

TIMOTHY P. O'DONNELL.

Drones instead of Queens

Please tell us what you would do if you had a neighbor, much(?) learned in bee culture, who would ask permission to get a queen from your yard whenever he had a swarm at home, and after receiving your consent would invariably march off in triumph with a drone? Understand me, he is too *practical* to read GLEANINGS. Will you please make it more convincing that the "moth" does not destroy bees in a normal condition?

I find it impossible to make my beekeeping friends believe that the moth is not the most deadly enemy of the bee industry.

Guilford, Kan., May 9.

HERSCHEL SHORT.

[Ignorance is certainly bliss in case of your neighbor, who thinks he has a queen when he has a drone. However, after one trial we should think he would find out his mistake.]

It is true that there are still beekeepers who are wasting their time fussing with moth-traps, moth-hives, etc., for the purpose of keeping moths away from bees, but all such are becoming fewer and fewer, as it becomes better and better known that strong vigorous colonies, especially of Italians, do not need any help in protecting the hives from the ravages of the bee-moth.—Ed.]

Paste for Sticking Labels on Tin

April 1, p. 232, Mr. G. A. Barbisch, of La Crescent, Minn., wants to know whether there is a preparation which will make labels stick to tin. I am pleased to say that there is, no matter how small the label. If it is of any use to the readers of GLEANINGS they are welcome to use it. It is as follows:

Make a flour paste, being sure that it is thoroughly cooked. To a pint of paste stir in a quarter of a teaspoonful of powdered alum. Avoid too much alum, as it will cause the tin to rust and the stain to come through the label. Label the tins before filling with honey. I have used this paste for ten years, and never yet had a label come off.

Owen Sound, Ont.

CHRIS. GRIMOLDBY.

Strengthening Honey-cases

For a number of years I have used shipping cases with a cross-piece $\frac{3}{4}$ inch thick through the center. I find that it reinforces the case, certainly half. I have no trouble with honey breaking from the sections. Others can do as well if they will use judgment in packing, being particular not to have hard lumps of straw or excelsior under the middle of those weak and frail cases that are used. Think of beemen asking that that frail box take care of our honey on the railroad. Does it look as if we knew how to take care of bees?

Theresa, N. Y.

B. J. WORSLEY.

Our Homes

A. I. ROOT

Ask, and it shall be given you; seek, and ye shall find; knock, and it shall be opened unto you.—MATT. 7:7.

And it shall come to pass that, before they call, I will answer; and while they are yet speaking I will hear.—ISA. 65:24.

Hitherto have ye asked nothing in my name; ask, and ye shall receive, that your joy may be full.—JOHN 16:24.

The following letter from one of our subscribers explains itself:

In your account of questioning the Savior, you claim to have got a "plain, distinct, decided 'No'" to each question. Why, then, do you go to Mr. Rood with some of your questions? If I had the use of a few pages in GLEANINGS each issue, and could go to the Savior with my questions with assurance of such prompt answers, I would ask him about many things the whole world has wanted to know throughout the ages, and give the knowledge thus gained to a waiting world. Even in such comparatively unimportant matters as beekeeping, gardening, poultry, health, eating, authoritative knowledge like that you receive from the Savior would be of vastly more value than any you are now publishing, as infinite knowledge is of more value than finite. You could easily double your circulation in a few months, and do an immense amount of good for temperance and religion. I should be pleased to read your answer to this question in GLEANINGS or in a letter.

My good friend, I am glad you have asked this question, because I may have been a little careless by leaving the inference to the effect that I *always* receive answers to my prayers in such a plain and emphatic way. I believe it is generally recognized that God answers prayer in different ways. Sometimes, as in the case mentioned, the one who is praying, almost as soon as the words are uttered, receives an enlightened conscience that enables him to see with his spiritual eyes, if I may use the expression, that he had been (at least for the time being) out of the straight and narrow path; or, in other words, that he had been unconsciously influenced by Satan to see things in a distorted light.

In our first text the dear Savior in his own words declares plainly that our prayers shall be answered. He says, "Seek, and ye shall find; knock, and it shall be opened unto you." Now, there are times—in fact, most of the time—when the great Father sees fit to let us work awhile, before getting what we ask for. In my work with the dictaphone God seemed pleased, if you will excuse the expression, to let me keep on at work, and be baffled again and again, before he told me or showed me how to get the results I was longing for. In the same way a good parent, instead of giving his beloved child every thing he asks for, shows him how he can get the desired thing by a little hard work.

In our recent studies of the history of Joseph we see how he was led from being a humble shepherd lad to the highest position in Egypt, next to the king; and Joseph had perplexities and disappointments so that, had it not been for his unwavering faith in God, he never could have stood for ages before the world as one of the greatest characters that the history of humanity furnishes.

Let us now go back and consider my trouble with the mischievous schoolboys. I had prayed over the matter several times—that is, after I had begun to see that I was getting into an unchristianlike frame of mind. I not only asked God's guidance but consulted my friend Rood because he was superintendent of the Sunday-school, and was universally recognized as a Christian man in that whole vicinity. My first impression was that the boys should be arrested for interfering. After friend Rood had declared that, if it were his case, he would leave the machine and "chase them down," I still felt uneasy and troubled about it. Had they been annoying other people in the same way it would have been a different thing; and when I asked the Lord on my knees, as I told you, if I should get out of the auto and go after the boys and get their names so I could make complaint, the answer came strong and clear, as I have told you. In other words, I could see while there on my knees that I should be out of place in any such proceedings, especially under the circumstances. Again I asked the question, or, if you choose, asked the Lord, to direct me in deciding whether I should report them to the sheriff, after I succeeded in getting their names; and the answer came as before, or, if you choose to put it differently, in that prayerful attitude where I was praying for the good of the boys as well as for myself it became *very clear* to my mind that I should be out of place or out of character, as the author of these Home papers, in reporting the boys to the police authorities, just because they annoyed *me* and nobody else. Good common sense seemed to declare that I had unconsciously gotten into a strife or quarrel with the schoolboys or the boys in the street.

Let me now tell you something that I did not tell you before. When they were annoying me by climbing on behind but not getting off when I ordered them off I decided I would get a yardstick which would enable me to reach them, and I actually went and bought one and laid it on the

seat; but before I had even flourished it toward them I asked the Lord if such a thing would have his approval. The answer came very plainly as before, and I never used the stick at all. I took it off the seat of the auto as soon as I got home. The answer came partly through a recollection of those precious and beautiful texts that I have already quoted: "Love ye your enemies; do good to them that hate you;" and "if thine enemy smite thee on one cheek, turn to him the other also." The implication would be that I should be forgetting my Christian character or standing, if I so much as even *flourished* the yardstick toward them. At every point I was handicapped—that is, handicapped so far as *striking back* was concerned; and I confess to you that it went awfully "agin the grain," as my poor friend Fred expressed it as we knelt together on the stone floor of the old Medina jail.

Many times our prayers are answered by not being answered at all; or let us put it this way: A child often asks for things that would do him harm. The wise parent refuses the request, and many times without explaining why. When Joseph was cast into the pit he no doubt prayed over the matter; and the same way when he was sold as a slave into Egypt; and again when he was cast into a dungeon for refusing to betray the sacred trust that had been conferred on him; and, if I am correct, he was something like *two years* in prison without any prospect, so far as he could see, that his prayers were answered or that his liberty would be granted. God saw fit to test his faith. In the same way Joseph seemed to his brethren hard and cruel; but he was only testing *them* and sifting them to see whether they had repented or reformed since he had lost sight of them. Although Paul had many wonderful answers to prayer, there was one thing he prayed about all his life, so far as we know; and yet his faith in the loving Father wavered not. God did not see fit to remove the thorn in the flesh, although he had, in answer to prayer, given him grace to bear it.

My good friend, I *have* asked the Lord repeatedly to guide me and to give me wisdom in regard to beekeeping, gardening, poultry, health, eating, etc.; and I would gladly submit the matter to the readers of GLEANINGS as to whether my prayers have been answered or not. The large circulation of our journal at present, the many kind words that come for my department, urging me to keep it up, is to me abundant proof that my prayers *have* not only been answered but are still being answered. I think you will agree with me that we have abun-

dant reason to thank God for the wonderful progress that is being made in the things you have mentioned, not forgetting temperance and religion; and my impression is that this progress has come largely in answer to earnest and faithful prayer. Not only is the Bible being read now in a way that it has not been before since the world began, but there are more people *praying* than ever before.

Our second text admonishes us that God prepares and plans his answers, even before the prayer is uttered. How do we know that God in his infinite love and goodness did not plan letting those boys full of mischief test my Christianity? One of the writers in the *Sunday School Times* suggests that, after we finish the study of the history of Joseph, we should take a birdseye view of the whole transaction. Sometimes in traveling we get to the summit of a hill where we can look back over the winding road that we have traveled over during the day. On the way to California you can many times look back and see how the railroad has twisted here and there in order to reach a certain point. Well, we want to take a birdseye view of that story of Joseph in the same way, and see the mysterious and crooked ways through which Joseph was led amid the perplexities and disappointments at the hands of his brothers, and yet which ended in placing him on the throne of Egypt beside Pharaoh himself as prime minister, and still later as the savior of the nation. Joseph *held fast* to the faith he had in God's many and gracious promises, and he had his reward.

Our last text contains another wonderful piece of information. In our prayer we should ask for that which we think we need and for that which is best for us. Jesus tells us to ask it in his name, and that is why we so often hear the expression at the close of a prayer, "in Jesus' name," etc. He says again, "Ask, and ye shall receive." This implies that, if the answer does not come all at once, as it does sometimes, by an enlightened conscience and intellect we know it *will* come eventually. Then he finished the sentence by saying, "That your joy may be full;" and I confess that I never *fully* realized what that means until this very moment. After having that wicked and spiteful spirit that I felt toward the boys who annoyed me—after having that bad spirit *banished* by prayer, I felt happy. And, my good friends, whenever any of you get to feeling spiteful and unpleasant toward your neighbors, prayer *will* dispel such feelings. Do you not agree with me? And when you are inclined to get into such a frame of mind again, just breathe this

little prayer to the dear Savior: "Create in me a clean heart, O God, and renew a right spirit within me." I told you about how my wife was startled because I laughed aloud when reading the Bible. I laughed because I felt satisfied that I had found a *remedy* for my troubles. When I came out ahead of the squash-bugs and saved my plants I no doubt laughed about it.

Let me now quote once more from the *Sunday School Times*. Please notice again the expression in our last text—"That your joy may be full." Wm. H. Ridgeway, in speaking about the joy of salvation, says:

"The joy of salvation." I would have no use for religion at all if there were not more fun in it than in any thing else on earth.

And I want to say amen to the above. True religion, which I have been trying in my feeble way to hold up before you, is actually more "fun" than any thing else.

FORTY YEARS WITH THE "LITTLE BUSY BEE."

The above heading was prompted by a trip I have just taken, June 17, out to one of our out-apiaries down on the river bottom, three or four miles away. Thanks to a kind Providence, honey is coming in very much as it did a year ago; and as a "gang" were going down to take off the first honey of the season I was asked to go along. In about half an hour's time our boys took off toward half a ton of honey, all from the upper stories, so there was no brood in any of the combs. Mr. Marchant, the foreman, opened the hives and lifted out the heavy well-filled combs while a boy drove the bees down with a smoker as much as possible. After Mr. Marchant had shaken off the bees in front of the hive an attendant who stood ready with a suitable brush brushed off all the remaining bees. The comb was then passed over to a fourth man, who placed it in an empty super. As soon as he received nine heavy combs they were carried directly to the auto truck until the load was made up. Then the truck was quickly run to the extracting-house at the Home of the Honeybees. You see the auto truck could be backed right up into the apiary close to where the men were working. It did not matter whether the air was full of flying bees or not. There were no horses to be stung. As the vehicle is equipped not only with rubber tires but steel springs, the load of honey was conveyed quickly and safely three miles or more away on the auto truck.

Forty years ago there were a good many jokes at my expense because of my enthusiasm for the future of bee culture. Our older readers will remember the picture I

gave of the hexagonal apiary.* By the way, that same apiary was a good deal on the plan of the modern "convergent poultry-yard." It was designed to save steps. You will recall that I had a picture of a little railway track and a car on this track to run up to the honey-house located in the center. This car was to carry the honey far enough from the extracting-house so it could be loaded on to a wagon without having the horses stung, etc.

Well, although I did have some wild visions in regard to the outcome of bee culture, I did not dream of an automobile for helping the beekeeper, for no such thing was then known or even dreamed of at that time. Perhaps I might remark that this is the first time we have gathered our honey from out-apiaries and brought it in on an auto truck. Heretofore we have carried the extractor around the apiaries and brought in the honey in cans; but you who have tried it know it is a big job to lug that extracting-outfit away out in the country and move it from one apiary to another. Ernest remarked this morning that he had been studying on the problem, and he was wondering whether the auto truck could not bring in the filled combs, and carry them back cheaper, rather than to carry a convenient extracting-outfit around to each apiary. When the extracting is done at the home or the center apiary we can use a gasoline-engine for power, which would be quite difficult if we had to move it around; and with this management we can have things fixed up in good shape for extracting, uncapping, etc. Of course, this necessitates having a set of empty combs; but this is an easy matter, especially when we extract only from upper stories and prevent the queen from having access to the combs above.

There is so much going on at the Home of the Honeybees just now that I feel sometimes like rubbing my eyes as did Rip Van Winkle, to be sure that I am awake. I suggested taking these heavy combs full of honey up to the honey and wax room, and have them do the extracting. Their force of women folks one would expect might be a little more tidy than a lot of men and boys. But what do you think was the reason given for not doing so? Why, just this: Orders are coming in so thick and fast for foundation that all hands have almost had to drop the work of honey and make foundation. Besides, there would not be any room there for the extracting business; and yet this wax and honey building covers a piece of ground 60 by 150 feet.

From the 50 colonies in that one apiary we took 1600 lbs. from our first extracting.

* Reproduced on the cover of Feb. 1st issue.—Ed.

This result, 32 lbs. per colony, as early as the middle of June, is certainly pretty good.

May the Lord be praised for what I have been privileged to live and see accomplished with the honeybees.

High-pressure Gardening

THE DASHEEN, AND SOMETHING MORE ABOUT IT.

On page 240 you will find a glimpse of my Florida garden, and of the dasheens about three months after planting. The ground had been mostly cleared off after growing some other crop. Just over my left shoulder, if you look carefully, you will get a glimpse of our Golden Bantam sweet corn, which our neighbors write me is the best sweet corn they ever tested. I think the Golden Bantam is the most suitable for growing sweet corn in Florida in winter, because it is much harder than the other varieties of sweet corn, and will stand the cold weather better.

Now in regard to the dasheen. Below is a clipping from the *Country Gentleman* for June 7. This same article contains a picture of dasheen shoots grown in a greenhouse in Michigan. Although I have not tested any of the shoots to be used like asparagus, I am fully satisfied they will be excellent food; for in hoeing about my plants I have occasionally chopped off a sprout with my hoe; and on chewing these white crisp shoots I have found them to be very rich and sweet, and almost exactly like raw asparagus. On page 240 of our issue for April 1 you will see there is a reference to the dasheen as a substitute for asparagus. It is somewhat surprising, at least to me, that none of our great seedsmen have not as yet taken hold of the dasheen and exploited it as they usually do new vegetables. The dasheen, like the calla lily, wants a very rich soil with a great abundance of humus and plenty of water; and wherever things are favorable I am told they frequently grow as high as a man's head.

A great deal has been written about the dasheen—that new root crop for the South. Now it appears that more will be written, and for good reason.

It is generally known that the dasheen has all the goodness of the common spud, with even greater food value; that the tubers can be baked, French fried, mashed, croqueted, and used for stuffing roasts. It is also generally known that a good flour is being manufactured from the dasheen; that the leaves of the plant make an excellent substitute for spinach and other greens; that plantings have yielded as high as 400 bushels of tubers to the acre.

That should be enough for any plant that has been experimented with in this country for only five or six years. But now the dasheen has added yet another chapter to its catalog of possibilities. The shoots of the plant have been tried out as a food,

and they have filled the bill to the satisfaction of all who have taken a hand in the experiment.

Ordinarily the shoots that eventually bear the big "elephant-ear" leaves are green and far from tempting. Perhaps they would never serve as a human food if they were experimented with in the natural green condition.

But recently the Division of Foreign Seed and Plant Introduction of the United States Department of Agriculture secured the co-operation of a man in Michigan and had him box in the growing dasheens so that light would be excluded from the stems. The result was a complete bleaching of these, and a product more tender and tempting than was hoped for.

The bleached stems were cut, packed, and shipped to Washington. David Fairchild, agricultural explorer for this division of the department, had them cooked, and served at a banquet. He took a long chance, for he didn't believe in trying out this experiment on the "dog." Well, the dasheen sprouts tasted good—something like asparagus—and were served like asparagus. Everybody liked them. And now Mr. Fairchild and the rest of his force are going in for a more thorough investigation of this new dasheen.

These shoots—or, rather, the dasheen plantings—were forced in a greenhouse. It was found that several crops could be grown in a season. Of course it is possible that such a process of growing this new food would not pay; but Mr. Fairchild and his corps feel that the same results will eventually be secured in the field, earth banking taking the place of boxing to effect the bleaching.

DASHEEN FLOUR—SEE A. I. ROOT'S SPECIAL NOTICES FOR JUNE 15.

The dasheen flour mentioned in our last issue was finally forwarded from Bradenton, Fla. The Department at Washington informed me that they have no more to send out this season. Well, while we are well pleased with the dasheen flour for cooking purposes I am not prepared at present to speak so extravagantly in regard to it as I did of the first baked dasheen tubers last January. Let me explain.

I got my first bag of dasheens on Christmas eve, as you will remember; and some time in March I secured five bushels from the Development Co. at Brookville, Fla. Now, these last five bushels were already sprouted more or less, and some of them were wilted somewhat. We all know that a sprouted and soft Irish potato late in the spring is not expected to be of first quality for table use, and it was so with the samples selected from the five bushels I bought. They were nothing near equal to the first one, which was hard and firm and solid. Well, this dasheen flour tasted a little like the wilted dasheens when cooked. We have tried them for making biscuit with

half white flour, also for making cookies. We passed them around the neighborhood, and they all voted them fine—better than biscuits and cookies made entirely of wheat flour. But the best results were attained with pancakes of one-fourth graham flour and three-fourths of dasheen flour. These, with maple molasses, were certainly delicious.

Will dasheen flour ever be a successful rival to common wheat flour? It looks to me quite likely; for I believe it is certainly a more nourishing food if possible. Then consider that 50 bushels per acre is a big crop of wheat, and few farmers come up to that. But the dasheen has been made to yield at the rate of 500 to 800 bushels.

Here is another one of my "happy surprises." The Department at Washington has just put out a very pretty bulletin of twelve pages entitled "The Dasheen, a Root Crop for the Southern States." It contains two pictures of the growing crop and a very nice picture of the tubers. From this bulletin I make the following extract:

The nutty flavor of the tubers gives them a peculiar palatability which has struck the fancy of a large number of persons. The higher nitrogenous and starchy character gives them an advantage as food that would seem to make the plant, when compared with the potato, an even more valuable food-producer.

RECIPES FOR THE PREPARATION OF THE DASHEEN.

This vegetable is a staple article of food for millions of people in tropical and subtropical countries. In general it is used in the different ways in which the white potato is used. It may also be candied like the sweet potato. The flesh of the corms and large tubers is frequently somewhat gray or violet when cooked, but this does not affect the flavor.

When uncooked dasheens are being scraped or pared they should be handled in water to which a teaspoonful of sal soda to the quart has been added, in order to prevent irritation to the hands.

BAKED DASHEENS.

Dasheens, large or small, may be baked like potatoes, in a quick oven. They should first be washed and scrubbed to remove the fibrous part of the skin. When practicable to do so it is often desirable to scrape the dasheens before baking, as they are then more convenient for eating, and the soft crust which forms when they are properly baked is particularly delicious. The corms may be cut in half from top to base in order to lessen the time needed for baking. The time required is about the same as for potatoes of the same size. They should be served hot. Season with salt and plenty of butter, and pepper if desired. Gravy instead of butter may be used.

The dasheen when properly baked and served is mealy, and the flavor is much like that of the white potato, but more or less suggestive of chestnuts. If not overbaked, the skin when properly scrubbed or scraped beforehand will be found of delicious flavor. As the dasheen is drier than the potato it requires more butter.

Additional copies of this publication may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cts. per copy.

The dasheen is used in enormous quantities in Cuba, where it is known by the Spanish name of malanga.

THE HIGH COST OF LIVING; HOW OUR MISSIONARIES MAY HELP TO REDUCE IT.

Friend Root:—I presume you will not remember meeting me in Medina some ten or twelve years ago; but knowing that you are interested in our work, and have taken a part in it, I think I may venture to address you as above. It was through your kindness in sending me a letter of introduction to the Wright Brothers, while I was at home on furlough year before last, that I met Mr. Orville Wright (also father and sister), and saw him fly. The fact that GLEANINGS has been coming to me for years I take to be a substantial proof of the A. I. Root Company's interest in foreign missions in general and in our mission in particular. I have read your department with much interest and pleasure; and seeing your interest in every good work I can only regard you as one of our number—a missionary. I have often felt like writing you after reading your kind and helpful messages, but have felt that it would not be wise to impose on your time; but upon reading what you say about the "dasheen" in GLEANINGS for March 1, 1913, and noticing that I am left out of your proposal to send a "dasheen tuber to every reader of GLEANINGS—that is, to every one who sends the subscription price for one year," since I receive it free, I have decided to write to see if I can not arrange to receive a tuber also.

Now, I suppose we must have something like the "dasheen," only we know it by the name "amadumbe." There are several varieties here—some very large, but almost worthless; others smaller, and highly esteemed as food. By the time this reaches you and I can receive a reply from you, our amadumbe will be about ripe, I think, and it will also be a favorable time for sending them so far by post. Now, if you would like to try some of our best variety of amadumbe, and compare them with the dasheen, and will so notify me, I will endeavor to send you a sample packet registered. We also have very nice sweet potatoes here. One variety we prize higher than the others, because of its very vigorous and quick growth combined with excellent eating qualities. It is quite the opposite of "vineless," but my experience has been the less vine the less vigor. If you would like a sample of these also, I will send them. Now, if in exchange for the above-mentioned samples you are willing to put me on the list of recipients of one of the Trinidad dasheen tubers (I should like to see how it compares with our amadumbe), I shall be pleased; otherwise I think I shall have to send my subscription to GLEANINGS.

I, too, enjoy hunting up "God's gifts."

I am addressing you at Medina, as this will reach you in summer; but presume the samples should go to your Florida address.

W. L. THOMPSON, M. D.

Mount Silinda, Masetter, Rhodesia, South Africa,
April 25, 1913.

My good friend, I was not only delighted to receive your kind words and your offer to take me among you as a "missionary," but I am grateful to you for the opportunity of testing some of God's gifts that come 'way off from South Africa. I presume likely my Florida home will be the place to test them; but I am so anxious to get hold of the tubers, both amadumbe and sweet potato, that I wish you would send me a very small package here, Medina, and a larger one in time to reach me at my Florida home some time in November; and if you will tell what the postage will be I will remit that also. I should like a good-sized package sent to Florida. I will see

that you get a small "bagful" of dasheens. Your kind offer is one of my "happy surprises," and I am also happy to think that our missionary friends can help reduce "the high cost of living."

GETTING RID OF VERMIN; MOTH-BALLS FOR SQUASH BUGS, ETC.

One of our new poultry-books recommends naphthalene flakes dissolved in kerosene as one of the most efficient remedies for all kinds of vermin about the poultry-house; but although I did not find any naphthalene flakes at either of our Bradentown drugstores, I overheard the proprietor telling the clerk that *moth-balls* owe their virtue to these same flakes. As they cost only 10 cts. per lb., and are so light, you get a big lot in a pound; we use quite a few of them, and they seem to banish all sorts of moth and other insect pests. Now, here is a clipping that indicates a quick and efficient remedy for bugs that infest cucumber and squash vines. I give it to you before trying it, for I feel sure it will do the business, and probably this will hit many of you just about the time the bugs are the worst.

MOTH-BALLS FOR CUCUMBER-BUGS.

Perhaps no reader of *The National Stockman and Farmer* has escaped the depredations of the little striped beetle. Many have become so discouraged by its ravages that they have quit trying to raise melons and "cukes." I have farmed and gardened in several States, and have had all kinds of trouble along this line. Seeds would germinate, plants would start nicely, and just about the time I would think that all danger was past these little pests would descend upon my plants and utter destruction would follow in their wake. I tried every thing I had ever heard of to prevent this destruction, but with only partial results. Soot, ashes, lime, tobacco dust, ammonia, etc., were all given a thorough trial; but never did I find any thing which gave assurance of success until I tried the "moth-balls" or "camphor balls," as they are called. When I plant my "cukes" or melons I place three or four of these balls in and around each hill, pressing them into the ground slightly so that they will not roll around. If these disappear before the vines are past danger I replace them with others until I am certain that all danger is past. Do not allow them to touch the plants while they are young and tender, as they may do some damage. This is a simple, cheap, and effective way to avoid damage from these little striped pests. I have used it for a number of years, and have recommended it to many others, and always with success.

A. L. GEFORD.

Later.—One of the poultry booklets suggests that 2 lbs. of pulverized moth-balls stirred into a gallon of crude carbolic acid, before you use it for painting the nest-boxes, roosting-poles, etc., will make it very much more effective and lasting.

Temperance

"Lord, now indeed I find
Thy power, and thine alone,
Can change the leper's spots
And melt the heart of stone."

Some years ago I mentioned in these pages an address delivered by the mayor of Barnesville, Ohio, before a convention of the Anti-saloon League at Columbus, Ohio. Barnesville was a wet town; and, if I remember correctly, it was very wet, and consequently it was a nest of gamblers. The people, however, put in a good man for mayor, and they were lucky in having a temperance man who was not afraid, and who was about as much a born fighter as some of the gamblers. He undertook to enforce the law and to put the saloons out of business. But some of the wets clubbed together and defied the law. Mayor White had them arrested and fined. But they paid the fine and went at it again. One particularly desperate character locked the doors against the law-enforcement committee and declared that he would shoot any man who would come on his premises. The mayor had him arrested and fined; but he had able counsel, and escaped the clutches of the law, just as we have seen it done in times past. Now, this happened so long ago that I can

not remember all the particulars, but I give what I can remember, subject to correction.

This desperate character put up a sort of saloon barricade made of railroad ties, and he had it ironed off so it required some big stout men with suitable tools to break in and arrest him. I think he passed the drink through a small hole in that barricade, and the money was passed through in the same way. Mayor White sent word to the man that he would have to submit, no matter what it cost. If I am correct, he was once fined \$800 and at another time \$1200. After paying the \$1200 fine he told the mayor if he would let up on imprisonment he would quit the business and go to some other town. He said he had a chance to sell out. The mayor inquired who was the purchaser; and when informed it was another desperate character he refused, and said something like this:

"Mr. DePew, if you will sell your place at a reasonable price to a man who wants to run a grocery on the premises we will let you off."

He accepted the offer, and left the town. He went to Cambridge and carried on the same business for years. Most of our Ohio

friends know something about Cambridge. Well, Mayor White, better known as the Barnesville mayor, gave a talk here under the auspices of the Anti-saloon League two or three weeks ago. Toward the close of his lecture he said something like this:

"My good friends, I have lately received a love-letter that I wish to read to you. I know it is not considered as a general thing good taste to read *love-letters* in public. But as I feel sure the writer will have no objection I take the liberty."

He then briefly narrated what I have mentioned above, and here is the "love-letter:"

Cambridge, Ohio, March 12, 1912.

MR. JAS. A. WHITE, Columbus, Ohio.

Dear Sir and Brother:—Yours of the 8th received, and I must say that I was somewhat surprised to hear from you. Yes, I did join the church, and I think it the grandest thing I have ever done. See here, old pal, I want to say to you that I went into this proposition with my eyes open. I don't intend to try to cheat God's law as I have the State and United States law, as you so well know.

I went into this with the intention of giving up my former business, also gambling, and, in fact, every thing I should not do, and I guess I have done a little of every thing most; but it is not what I have done: it is what I do from now on.

Well, Jim, I can say this much: I don't know of a person in this world toward whom I feel the least bit of spite. That is saying something for me, being the kind of a rounder I was, as I have seen as much of the wicked part as any one of my age. The reward is too great to take a chance. Well, Jim, if I only fight as hard for God as I did for Satan I surely can do some good in this world yet. Well, I hope and pray as I go down the straight and narrow path that I may not vary out of it much. God knows what my outcome will be. I am willing to trust him. He knows I came to him on the square. With best wishes for your success I am

Yours very respectfully,

JOHN E. DEPEW.

Who, do you suppose, wrote that letter? The very man who threatened to shoot the mayor in years gone by, when the mayor's best friends really feared he *would* be shot if he kept on with his determined law enforcement. After the lecture I begged for a copy of the love-letter; and I also asked Bro. White what brought about the conversion of his old friend. He said it was through a series of meetings by evangelist Lyon. Just about that time I noticed in the papers that Mr. Lyon was having a revival at Fairmont, W. Va., where it was reported there were over 2000 conversions. A few days ago I saw another account where the number of conversions in that one town or city had reached quite a little over 3000.*

* Over 2000 converts in one fair-sized town or city! What are we coming to? When we read of grafting, dynamiting, and horrible murders, we sometimes lift our hands in horror and say, "What are we (the world) coming to?" Well, may the Lord be praised for the fact that the world is already coming to something else as well as to wickedness and sin. The world is "coming to" the Lord Jesus Christ, and to repentance and the new birth, like the poor penitent saloon-keeper and gam-

Now, it is not at all likely that Mr. Lyon in his earnest work has *many* such conversions as that of the Cambridge saloon-keeper; but only God knows the number of bad and wicked men who have been changed over—born again. May God be praised for evangelist Lyon, Billy Sunday, Bederwood, and perhaps several others who are now attracting the attention of the whole wide world by their crusade for Jesus Christ. No wonder the brewers and saloon-keepers try to prejudice people against him.

I wish to call attention to the last sentence in that touching letter: "He knows I came to him on the square."

Here is a brief footnote from James A. White in regard to the letter furnished me:

John E. DePew was formerly engaged in the saloon business at Barnesville, O. James A. White was formerly mayor of that city; and, after the saloons were voted out, fined DePew for violating the dry law. The said DePew finally concluded to go to Cambridge, O., and did so, and was arrested there for violating the law; but during the revival services conducted by Rev. Mr. Lyon in the city of Cambridge last winter Mr. DePew was converted and joined the church. Mr. White, hearing of it, wrote him a congratulatory letter and received the above in reply.

May God be praised for such men as the "mayor of Barnesville" as well as for evangelist Lyon. Bro. White told me that for some little time after he heard of DePew's conversion he hesitated about writing to him, fearing that DePew might not feel very friendly toward him, even after he had come out among the converts; and this brought out the letter given above.

ANOTHER TESTIMONIAL FOR "PEACH JUICE."

Our good friend W. J. Bryan's hobby seems to be grape juice, or at least the papers accord him the credit of being the great "grape-juice man." Well, we have good reason to thank God that there is at least one man who stands away up in the affairs of this government who not only *drinks* grape juice but is not ashamed to offer it to the great dignitaries from foreign lands. Well, now for my little story.

Years ago, when Mrs. Root's only sister was a frail little chick lying in her cradle, the doctor feared she would not live long. In fact, I do not know but they had given her up. While the anxious father stood watching her feeble breath, he remembered a peach-tree out in the yard that was loaded with luscious fruit dead ripe, and he wondered if some of that fresh peach juice would not coax back the fluttering breath. He squeezed some of the juice into a teaspoon. She took it with relish, and wanted

bler who wrote that plaintive letter. May God sustain him in his efforts to bless instead of curse humanity.

more; and he fed her on peach juice till she got well and strong. The doctor said he did not *think* it would do her any harm; and as they said they had tried every thing else he did not make any objection. She gradually picked up, and lived to a pretty fair old age. I wonder if peach juice would not be a good thing for babies *now* in place of soothing-syrups and similar concoctions. May be it would be a good thing too for some other folks who are trying to break off from bad habits. Thank the Lord for peaches, and especially for the California *evaporated* peaches of the present day that afford us the means of having delicious "uncooked" peach juice every day in the year.

THE MILLENNIUM COMING—MORE EVIDENCES OF IT.

It is a fine thing to be able to catch a glimpse of the good there is in this world of ours, as well as to recognize and give due attention to the evil that is constantly cropping out. I have been for years past hoping and praying for clean men in the high places of our government. I rejoiced and thanked God when President Taft said, "I do not drink;" and I was glad to hear Roosevelt come out before the world only a few days ago and say, "I neither use tobacco nor drink beer." Of course he gave as a reason that he did not *like* either; but, oh how I did long to have him drop just a word in regard to the example that our presidents and other men in high places set before the boys—especially the little boys in this land of ours. I rejoiced and thanked God when Secretary Bryan passed around the "grape juice" to the foreign dignitaries, and gave his reasons for so doing. I rejoiced again when our good President not only indorsed Bryan but banished liquors from the White House. My last rejoicing was when I read the following clipping from the *Cleveland Plain Dealer* in regard to Vice-president Marshall:

HAS HOE-CAKE AND MILK; VICE-PRESIDENT MARSHALL BELIEVES IN SIMPLE DIET.

A slice of old-fashioned "hoe-cake" and a generous glass of creamy milk is the lunch upon which Vice-president Marshall subsists 365 days of the year.

The Vice-president has a theory that a simple diet is a builder of happiness. Recently he said in a private conversation that the United States would be a nation of happy men and women if a less complicated diet came into fashion.

"It is not that Americans are gluttons," he said, "but they want an infinite variety in their food. The American palate has lost its taste for the plain cooking of our forefathers, and longs for French messes."

Amen to Bro. Marshall's timely rebuke to the women who spend their lives and take so much pains in tempting us men folks to eat more than is good for us. May God hasten the day when more of us can make

out at least one meal out of the three with hoe-cake and milk. Now, will some good friend who sees this tell me where Bro. Marshall gets his hoe-cake? Can it be bought at the bakeries, or must it be baked on a hoe? In other words, what is this hoe-cake that Vice-president Marshall eats at least once every day in the year? We can get a glass of "creamy milk"—or at least most of us can—without very much trouble, thanks to the recent fashion of drinking milk instead of beer. Now give us the hoe-cake, or tell us where we can get it "pure and unadulterated."

SPELLING "CIGARET."

'Tis only a word, but one you've oft heard;
We call it a cigaret;
I'll spell it, so that, hearing, you'll know,
And, knowing, you will not forget.

There's C for the cad it makes of the lad
Who twirls in his fingers the bit
Of a paper rolled up (a tobacco-filled cup),
And thinks he's a man when it's lit.

Then I is for imprints of stains;
And the dark hints of shadows lie under his eyes;
For once he starts smoking it comes far from joking—
It's leading to swearing and lies.

G is for gladness cigarets turn to sadness
When once they have gotten their grip;
Their kisses leave trains of yellow dark stains—
To remind him on fingers and lip.

Allurements for A—temptations so gay
Beckon with jewels and wine;
He finds out at last that it may be all brass
As well as the gold that will shine.

Then reckless for R, and the reason they mar
The rugged good health he has lost;
"Oh, why? and oh, why?" says the lad with a sigh,
"Did I never quite reckon the cost?"

E is for ease, and the "do as you please,"
The attitude bold he assumes;
He's getting more lazy, his mind is more hazy,
The more "coffin-nails" he consumes.

Next T is for times he has wasted his dimes
On parcels of paper and weeds;
Oh! little he thought, when the first one he bought,
That trouble was planting the seeds.

So now you may see what the small word can be
When each of its letters you spell;
It's letters are few, 'tis a small word, 'tis true,
Till some of its meanings you tell.

Gladwin, Mich.

MRS. HUBER SOPER.

ANOTHER KIND WORD FOR TERRY'S BOOK.

I enclose \$1.50 for GLEANINGS and Terry's book, "How to Keep Well and Live Long." I have already had two. One I gave to a friend who liked it so well *she* gave it to a friend and bought one for herself. The other I have not seen since last June. It has been lent so much I have lost track of it, and do not expect to see it again; but I want one for myself. I expect to take GLEANINGS as long as I live and can see to read, or as long as A. I. Root writes for it, or Dr. Miller. EVA M. CLEVELAND,
East Cleveland, Ohio, April 14.

Health Notes

POSTUM CEREAL, WHEAT COFFEE, AND SOME OTHER THINGS.

Years ago I became satisfied that coffee was injurious. I tested it repeatedly on myself, and watched its effects upon others; and when I noticed how the habit seemed to be growing, and saw statistics in regard to the amount of money paid for coffee, not only throughout the United States but perhaps almost all over the world, and oftentimes paid by poor people who had hard work to make ends meet, it seemed to me a very sad condition of affairs. As the years passed, and I saw the habit of drinking coffee growing instead of lessening, I wondered if any thing could be done to stop it. Now, in view of the above it seemed almost funny—yes, I might almost say a big joke—to find a man who has gotten rich—yes, become a millionaire, and, for all I know, a multi-millionaire—protesting and teaching and *preaching* about the harmfulness of coffee! I remember Post when he first started out with his postum cereal and grapenuts. In fact, I was one of the first to get his substitute for coffee and give it a pretty good test to see how much truth there was in his claims; and I have smiled and felt happy as the years have gone by to see what a tremendous business he has been building up in getting people to give up things that are hurtful and harmful. Very likely there is some exaggeration in the letters he has published; but notwithstanding I believe that Post has been one of the great reformers of the age; in fact, he has been doing a great missionary work in his own way, and getting big pay for it.

You might imagine from what I have said above that Post has given me "*big pay*" for writing up his products, and you might expect that a big glaring advertisement might come out in GLEANINGS very soon. I want to tell you, my good friends, that Post, for some reason or other, has never seen fit to patronize GLEANINGS by giving us even a single line of his advertising. Perhaps if somebody should call his attention to the above he might send us a "good slice" of his advertising business—that is, if he didn't read further and see what I am now going to say. Notwithstanding I honestly believe all the above is true, at the same time I want to call the attention of our readers to the fact that it is a tremendous waste of money to buy postum cereal instead of making the wheat coffee that our good friend Terry has advised and directed how to do so many times in the two or three years that have passed.

Grapenuts has proved a very good and agreeable food in our home. We have used it more or less ever since Post gave it to the world. I think he has done good with the grapenuts as well as the postum cereal, even if he has had big pay for his missionary efforts. If he would only come down on his prices to half, or a good deal less than half, he might still make money and do good. I think I am safe in saying this, for I believe that Terry's wheat coffee is every bit as wholesome and good as the postum cereal. I am all the while getting so many letters in regard to wheat coffee, and so many inquiries, I think I can tell you best all I know about it by giving an extract from a recent number of *The Practical Farmer*. Here it is:

A CHEAP, WHOLESOME BREAKFAST DRINK.

Our women readers can save quite a little money by following advice given here. And that means more money for other comforts. There is a continual call for directions for making our wheat "coffee." So we give them again. I have just roasted enough at one time to last several months. I use plump re-cleaned wheat, same as we grind for graham flour. Make a hot fire in the cook stove or range. Roast in iron dripping-pans, the wheat about one inch deep. Fill the oven full. When the wheat gets dry and hot you will need to stir it with a large iron spoon once a minute, more or less, to prevent its burning. It should be roasted very brown, but not burned away, if you can possibly avoid it. Smoke indicates that it is burning. I bought extra dripping-pans so I could roast considerable at once. They cost but little. One should put an even number of pints of wheat in each pan, say two or three, no fractions, for convenience when adding molasses. When the wheat is thoroughly roasted add 3 tablespoonfuls of New Orleans molasses to each quart of wheat. Then roast 10 or 15 minutes longer, but with less fire, as it burns easier after the molasses is put in. When done, empty each dripping-pan into a large pan that will hold all you have. Stir and mash with a large spoon to prevent its caking as it cools. One is not likely to get every painful roasted the same, and this mixing makes the quality even. We used to put in butter to prevent its sticking together; but this stirring as it cools answers as well, and the wheat keeps better. When cold, seal up in glass fruit-jars and store where it is dark and cool. Grind each morning fresh, and boil about 20 minutes. Two teaspoonfuls make four cups as strong as we like. You will soon like it as well as any coffee, and it is free from poison. Let the children have it. If it is not as dark-colored as coffee, and good flavor, you did not roast it enough. Of course, you can buy a cereal drink in paper boxes at a cost of 10 to 20 cents a pound, but we do not think any of them as good as ours, which costs about 3 cents. We do not tire of it, year after year. I really like it as well as cereal coffee—quite a little money saved.

Now, after you have read the above I want to tell you that our next-door neighbor, a Mr. Ault, who has just come from Colorado and settled down here in Florida (a beekeeper, too, of no small experience), has brought along with him some very nice

plump Colorado wheat—about fifty bushels. As soon as we Florida folks found it was for sale, and also that it was so much nicer than any we get in our market here for the chickens, we very soon relieved him of all he had to sell. Well, now we have taken some of this wheat and ground it in that little hand mill that I described so many times, and we have the most luscious graham bread that I ever ate in my life. And after the flour is sifted out for the graham, Mrs. Root boils the coarser wheat three or four hours, or all the forenoon. Now, this wheat mush, when it becomes cold, is sliced up and put into the oven just before breakfast or dinner until it is nicely warmed up and a sort of jelly formed over the outside. A slice of this nice wheat mush, nicely buttered over, is the finest cereal of any thing I have ever tasted in my life. If you want to get a dish that is fit for a king, as Ernest expresses it, add a little honey after it is well buttered. I do not very often use the honey, because I have to be a little careful about too much sweet of any kind. Right beside your plate you want a glass of rich milk. Take a sip of the milk as you chew the wheat thoroughly—mush and milk literally. I want to add that we have the finest milk down here in Florida that we ever had in our lives, from neighbor Rood's Jersey cows, and he does not have to *buy hay* either. He grows every bit of the hay he uses for his horses and cattle on his own place. We have just one pint of this Jersey milk a day (and it is a good *generous* pint), but this milk not only furnishes all the milk we use, but Mrs. Root skims off the cream and often makes quite a little butter, and this cream she gets into butter in less than five minutes.

THE PATENT-MEDICINE BUSINESS; THE STAND SEARS, ROEBUCK & CO. HAVE TAKEN.

We clip the following from a leaflet just sent us:

WHY WE HAVE DISCONTINUED PATENT MEDICINES.

Many of our customers will be surprised and possibly some of them disappointed, to find that this catalog no longer lists the various patent medicines we have carried in the past. Our decision to discontinue the sale of patent medicines was made after careful study of the question from all sides, and is based on our policy of handling only dependable merchandise—merchandise that we believe will give the service our customers have a right to expect. We have come to believe that patent medicines do not conform to this standard; in fact, we are confident that those of our customers who have investigated the matter thoroughly will agree with us that, considered in all its phases, the patent-medicine business is a public evil.

We are not prepared to take the extreme position that no medicines of any kind, regardless of how simple or in what manner advertised, should be offered direct to the public. However, even such a

state of things might easily be better than the present situation, in which we find valueless and even dangerous medicines offered to the public through the medium of advertising that is extravagant, misleading, and deceptive—advertising calculated to deceive the well into the belief that they are sick, and to induce the sick to pin their faith to ineffectual means for recovery.

Practically every patent medicine is put out under a trade-mark name and secret formula. The fact that the name is private property makes advertising profitable where otherwise it would not be. Secrecy permits advertisement of the most extravagant sort to go more or less unchallenged. It is not unusual to find a patent-medicine advertisement that tends to leave the impression that there is a "mysterious something" about the medicine that is sufficient to account for the otherwise unbelievable virtues attributed to it. In selling patent medicines the tendency is to tell as little about their composition and to claim as much for them as the law will allow.

That patent medicines are more than likely to be disappointing as well as dangerous is apparent when we consider the fact that the all-important as well as the most difficult thing in the treatment of disease is that of finding the real underlying cause of the trouble, and the further fact that the person least able to form a safe judgment in this matter is the patient himself.

The person who falls a victim to the advertisement that attaches a grave meaning to every little ache or pain, when in reality nothing ails him that forgetting would not cure, is at least defrauded.

The person who depends on an advertised nostrum to cure a serious ailment which, to be successfully treated, must have only the most prompt and skillful attention, is throwing away valuable time. The most dangerous medicine, especially in the case of the lingering disease that drugs alone can not cure, is that which, by containing a stimulant or an opiate, causes its victim to feel better for a while. Being thus encouraged in a vain hope, though all this time the lurking disease is steadily progressing, he often turns too late, if he turns at all, to rational means for recovery.

INSANITY AND ITS RELATION TO INTEMPERANCE.

We clip the following from the *Sunday School Times* for June 7:

WHY INSANITY DISAPPEARED.

In ninety-seven of the counties of Kansas there are no insane, in eight-five counties no feeble-minded, in fifty-seven no paupers. It can not be accident that has sent the germ plasma of insanity skipping out of Kansas. It is obviously and unmistakably due to the enforcement of prohibition and the consequent decrease of the neuropathic taint.—DR. MARY WOLFE, University of Michigan, in *Philadelphia North American*.

My friends, how are insanity, feeble-mindedness, and pauperism in your county? I am ashamed to say that our own county of Medina, here in Ohio, is nowhere near what is reported above in "prohibition Kansas." How is it possible for any sane man or woman to vote wet when wet votes mean, *without question*, insanity, feeble-mindedness, and pauperism?

The A. I. Root Co.:—Please discontinue my ad. as I no longer can care for orders.

ROBT BIRD, Pinckneyville, Ill.

Gleanings in Bee Culture

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Editorial

MORE BEES KILLED BY SPRAYING WHILE IN BLOOM.

THE following from a correspondent is one of many more reports that we have received showing the injurious effect upon bees of trees sprayed when in bloom. While the quotation here given does not state this fact exactly, yet we know the bees would not have been killed unless the trees were sprayed while in blossom. Here is the item:

Bees have been killed by the peck in this locality by spraying with arsenate of lead, and it looks now as if little or no comb honey will be secured this season. C. E. PALMER.

Ransomville, N. Y., June 13.

CONNECTICUT PASSES A FOUL-BROOD LAW.

WE have just received a copy of the foul-brood law recently enacted in Connecticut. It is an excellent law, and it seems to be very carefully worded throughout. However, it limits the amount that may be expended for carrying the act into effect to \$750. Of course, Connecticut is a small State; but to do effective work the appropriation certainly ought to have been larger. But doubtless the beekeepers of Connecticut are very happy to secure as much as they did, especially as the general provisions of the law are excellent. The way is now open to secure a larger appropriation later if necessary.

THE CANADIAN BEE JOURNAL ABSORBED BY THE CANADIAN HORTICULTURIST.

IN June the *Canadian Bee Journal* and *Canadian Horticulturist* were consolidated, or, rather, the *Canadian Horticulturist* purchased the *Canadian Bee Journal*, and it now has a large department entitled "The Beekeeper." This department in the first issue since consolidation is well illustrated, and the matter carefully selected. Doubtless the *Canadian Horticulturist* recognizes the intimate relation between the two lines of industry, and the combination is most natural. As the *Canadian Horticulturist* is an old and well-established journal, it is doubtless true that the beekeeping interests on the other side of the line will be taken

care of as well as or better than was the case when the publication was devoted wholly to bees. GLEANINGS offers its congratulations and best wishes.

DEATH OF WILLIAM M'EVROY.

JUST as we go to press, announcement has reached us of the death of our old friend Wm. McEvoy, of Woodburn, Ont., Canada. Mr. McEvoy was one of the pioneers in the treatment of foul brood; indeed, he was the author of what is known as the McEvoy treatment of foul brood. This did not differ materially from the Quinby or the Jones methods except that he gave two shakings on two sets of foundation, and put the bees back in their hive.

Wm. McEvoy was a prominent figure in Canadian beedom. He was for years its only foul-brood inspector.

"Mac," as he was familiarly called, was a "hail fellow well met." The position of any foul-brood inspector is sometimes embarrassing in that he sometimes has to deal with people who are inclined to give him a sort of shotgun reception. "Mac's ever ready Irish blarney" (in the language of J. B. Hall) was at all times equal to the occasion. He always knew how to handle his man, and before leaving he would get his good will.

Mr. McEvoy was a large producer of honey, a good beekeeper, and his death will be regretted by his many friends.

It used to be said that a convention in Canada would not be quite complete without J. B. Hall, of Woodstock, Ontario, or Mr. McEvoy, of Woodburn. Both of them had a happy faculty for enlivening discussions and for throwing in practical suggestions. Both together made a team. But both have gone to the land beyond.

In later years the problem of taking care of foul brood in Ontario became too great for one man to handle. Our friend Mac believed he could handle it all; but in that he was mistaken, for the disease was surely getting the better of him. In later years it was discovered that even five or six men could hardly cope with it. During the last

four or five years Canada has had, we believe, five or six inspectors.

Our old friend took it to heart when the beekeepers of Ontario decided that they needed six inspectors in order that the whole territory might be thoroughly and completely covered. In the last year or so he dropped out of the inspection work, and devoted his time wholly to the production of honey. Peace to his memory.

HONEY PRODUCTION AT MEDINA.

THE past few days have been very busy ones at the Medina apiaries. The 1000-lb. automobile truck has been kept busy going to the yards and bringing in honey and bees. A part of one day and a part of another we took off 9000 lbs. of extracted from a part of the home yard and one out-yard, and we have an extraing to take at both yards yet.

THE STEAM UNCAPPING-KNIFE.

We have been trying out the steam uncapping-knife and the ordinary knives dipped in hot water. When there is a large amount of uncapping to do, especially if the capping extends clear over both surfaces of the comb, and the honey is thick, the steam-heated knife is far ahead of the ordinary knife dipped in hot water. But when the cappings cover only a part of the surface, the hot-water-heated knife does practically as well as the steam-heated knife, and avoids the inconvenience of the tubing reaching from the boiler to the knife.

THE CANADIAN UNCAPPING-KNIFE.

We have also been testing out the Canadian form of knife as compared with the Bingham. At first the boys were inclined to favor the former; but after a more thorough testing they decided that the Bingham shape is the better, as it takes less pull on the wrist to shove the Bingham through the cappings, for the reason there is less beveled edge to cause friction on the comb.

THE PETERSON CAPPING-MELTER.

We have been using with considerable satisfaction the Peterson capping-melter; and when the big power extractor was throwing out the honey faster than one man could uncap, another man was put on the other side of the machine. The honey and wax flow together into a wax-separator; and the honey from such separator, so far as we can discover, is equal in flavor to that taken with the regular honey-extractor. At the end of the day's work there are no cappings lying around, for the reason that they have all been melted and the honey separated out. More or less dirt from old combs will run in with the wax. The big cake of wax from the separator is taken out, re-

melted, clarified, and recaked before it is fit for the market.

THE HONEY-PUMP AND THE GRAVITY SETTLING TANK.

The honey-pump continues to do good work. It carries the honey to any point desired into an elevated gravity tank. All dirt, skimmings, dead bees, etc., rise to the surface. The honey is then drawn off into square cans from the bottom of the tank. We have no hesitation in deciding for the gravity scheme for clarifying honey rather than fuss with honeystrainers that are continually clogging up.

ELECTRIC ALARM FOR FILLING SQUARE CANS.

We have been using an automatic electric alarm to give notice when the 60-lb. cans are full. The whole thing can be made in about an hour, and is so simple that any one can make it. A full description with illustrations will appear later. Of course, the idea is not new; but the manner in which we have applied the principle may be new to some.

THE AUTOMOBILE TRUCK FOR BEEYARD WORK.

The automobile truck (the Commerce) is doing splendid service. It has never given us any trouble except once when we got stuck in a mudhole through the inexcusable negligence of certain township trustees who allowed the place in question to become impassable for even horse-drawn vehicles. Otherwise our truck has responded promptly through mud and rain, day in and day out. It has enabled one crew of three men to take care of five queen-rearing outyards, including the one home yard. Our foreman has set his stake at 100 lbs. per colony, spring count. If the drouth had not set in so severely he would have reached his goal, and he may do it as it is. Nor has the basswood apiary, in charge of our Mr. Pritchard and his son, been idle. This yard will turn out about 3000 queens besides its full quota of honey.

CRANBERRY-GROWING ON CAPE COD, MASS.; A REMARKABLE INSTANCE SHOWING THE VALUE OF BEES AS POLLINATORS.

JUST before we started for the Massachusetts convention referred to in our July 1st issue, p. 434, we received a letter from the President of the United Cape Cod Cranberry Co., Mr. Marcus L. Urann, at South Hanson, near Boston, inviting us to look over their cranberry properties where they are conducting some experiments with bees in pollinating the cranberry-blossoms. After the convention we went on to Boston, then on to South Hanson, where we met Mr. Urann.

The United Cape Cod Cranberry Co. has

discovered that the yield per acre could be enormously increased by having bees within convenient access. Formerly wild bees in the locality have been sufficient to do the work of pollination for the cranberries; but the experimental department of the United Company believed that there was not at all times a proper pollination, and in looking about for ways to improve and increase the crop, it was determined to increase the number of bees. The company began to buy up bees and put them at the various properties, when, presto! the yield came up. The company has now something like 700 acres of cranberries; and in the near future it will increase this acreage to 2000. It is in no way interested in the production of honey only as the honey itself may be used as a means for paying for the bees, and perhaps leave a comfortable margin besides. What the company wants is cranberries, honey being only a secondary consideration. So gratifying have been the results by increasing the number of bees that Mr. Urann has employed a beekeeper to make rapid increase so that he may be able to take care of their various properties by having the requisite number of bees at each bog where the cranberries are grown.

The problem that Mr. Urann would naturally like to solve is, just how many colonies of bees are needed for a given acreage; and when he put that proposition to us we admitted that we might be wild in our guess.

One test was, however, somewhat significant. There was one bog at Halifax that had 126 acres of cranberries. On one side of this were some three or four colonies last year. It was very evident that this number was inadequate to cover the entire field. It was very significant that the yield per acre of berries was in direct proportion to the proximity of such acreage to the bees. The yield was heaviest close to the hives, and was thinner and thinner as the distance from the hives increased. The showing was so remarkable in this and other fields that Mr. Urann proposes to increase materially their investment in bees another year.

In a small way he has conducted some experiments where he screened a small area of cranberries away from the bees, and right beside it he established a small plot that the bees could visit. There was a "deadly parallel" between the two. The screened portion had very little fruit, while that free to the visitation of the bees had a large yield. We will not attempt to give the actual figures at this time. This whole proposition is so interesting that we are now laying our plans to make a second visit to see those wonderful establishments

where the bees are proving to be such benefactors, not in honey production, but in the enormous increase of the yield of berries per acre.

In our travels over the United States we never saw a situation that demonstrated more clearly the value of bees as pollinators than in the cranberry-fields. Every cranberry-grower is now making plans to go into the bee business, not because he expects to produce honey, but because he knows by putting in bees he will increase his yield of cranberries per acre.

We might explain that a cranberry-bog is nothing more nor less than a piece of swamp land carefully and accurately graded after all trees and other vegetation have been removed. The cranberry-plants spread and grow like strawberry-vines, and, like the strawberry, they must have bees.

At some future time we hope to present some photos that will show some of these remarkable fields where the bees are earning more money for their owners than probably any other bees devoted to the production of honey anywhere in the United States.

HONEY-CROP CONDITIONS.

REPORTS from supply dealers and beekeepers generally go to show that 1913 will go down in history as a great clover year. There has been a tremendous yield in many localities; but in others the drouth has been so severe that the crop has been cut short or cut off entirely. But the yield has been so heavy in favored localities that white-clover honey will be very much in evidence in the markets. It is of very fine quality, for the reason that weather conditions were ideal for ripening. In general, reports indicate that this has been an off year for basswood. Late reports from some parts of Ontario, Canada, indicate a big yield from clover. In some parts the yield was cut down by early frosts.

Had it not been for the drouth setting in, in many localities, the honey markets of the East, at least, would take a tumble. As it is, prices will probably rule easier than last year. However, it is rather early yet to make a definite statement as to what the actual clover crop will be. Reports have not come in very numerously as yet; but here are a few that will give some idea of what the season has been. It should be noticed that the reports up to June 28, from some localities, are discouraging on account of drouth. But in many of those drouth-stricken places heavy soaking rains have since come, with the result that honey began to come. This was particularly the case in New York. Well, here are a few of

the reports from the clover districts, and one or two from the West:

The honey crop is almost a failure in the black belt of Alabama. It will be the shortest crop we have had since 1907. We have abundant clover, but the weather is so dry it does not yield much honey.
Montgomery, Ala. J. M. CUTTS.

The honey crop in this section will be almost a total failure this year.

Watsonville, Cal., June 27. C. W. ARNETT.

I never saw so much white clover, even in Ohio. Ingleside, Ill., June 25. D. B. STANFORTH.

Prospects are good for honey; plenty of white clover.

Freeport, Ill., July 1. A. E. LONG.

The honey-flow here unusually good. White clover is abundant.

Chesterfield, Ind., June 26. J. H. COLLINS.

We expected a bumper crop of white-clover honey, but drouth knocked us out. No rain for three weeks caused white clover to dry up.

Vincennes, Ind., June 23. WM. F. LUDWIG.

Bees are breaking all records so far this year—the best honey-flow in 30 years up to July 5. I have taken off over 100 lbs. per colony of comb and extracted honey, and it is the finest I have ever produced.

Chariton, Iowa, July 5. L. RIEBEL.

Bees have done better than usual this season; also made more trouble by swarming. Basswood will bloom in a few days, but the bloom will not equal last year. The two months' drouth was ended the past few days with showers, making 2.25 inches of rain.

Payson, Ill., June 26. DANIEL E. ROBBINS.

Our June flow is at least 25 per cent above the average. The yield from white and sweet clover is very good. Basswood is blooming sparingly.

North Tokepa, Kan., June 24. A. V. SMALL.

Bees are strong, and doing excellent work. Clover is yielding an abundance of nectar; good crop expected.

Brooksville, Ky., June 26. H. C. LEE.

Honey yield is a record breaker. White-clover honey had to be removed by June 26 to make room for basswood. Basswood rich in bloom and honey; bees having nine more days to work. It will be in all a double crop or better. After the rains white clover is very thick again.

FRANCIS JAGER.

St. Bonifacius, Minn., July 7.

Our honey crop is very short in this part of the country on account of dry weather.

Strafford, Mo., June 30. L. A. WEBSTER.

The prospects are fine for a good crop of honey in Nevada this year.

Smith, Nev., July 2. C. M. CARTER.

There has been very little honey gathered from clover to date. Fruit bloom was very light, and the prospects for a good crop of honey this year are discouraging. We have had a dry cold June.

Pittsfield, N. H., June 27. HERBERT C. TOWLE.

Crop of clover honey a failure here. I have run four yards of bees, and have not had a swarm so far this season. Too dry.

Parkville, N. Y., July 8. A. W. SMITH.

Reports we are receiving say, "Hives are over-running with honey." The weather is still good for honey, and beekeepers are mostly jubilant. I hope it will continue so till August 1. Then look out for a bumper crop.

F. A. SALISBURY.

Syracuse, N. Y., July 1.

Clover is a failure—worst in 20 years. Basswood is ruined by forest worms, etc., except scattered spots.
R. G. SMITH.

Ticonderoga, N. Y., June 25.

At yesterday's meeting the New Jersey Beekeepers' Association reports indicate general conditions as unsatisfactory—from half a crop to a total failure, attributed mostly to alternating heat and cold, especially cold nights, which seem to check nectar secretion. White clover is in great abundance, but little or no "juice" in it. This condition seems general.

Hoboken, N. J., June 26. C. D. CHENEY.

This has been about the best clover flow we ever had; but it is practically over, as the buds on the basswood were killed by the cold spring. We shall get no basswood honey.

Hastings, Ontario, July 5. J. F. ORISHAW.

The spring freezes of April 20 and May 6 paralyzed honey production, and nearly ended the bee business with me; yet the clovers have finally turned the scales, and I am now selling honey again. My production will be below normal, and will likely not exceed 1000 lbs. of comb honey.

Bladen, O., July 7. CHAS. H. CARGO.

There is the largest crop of white clover there has been for many years.

Bulger, Pa., June 30. M. M. PHEEN.

I report about half a crop, all alsike and white clover. Locust, not any. Red clover, hardly any here.

Ronks, Pa., June 25. D. F. ZOOK.

Bees are booming; clover bloom is the finest in years; supers filling up rapidly; very little swarming.

Wilksburg, Pa., June 25. W. D. KEYES.

A severe drouth will prevent our getting a large crop of honey.

Middlebury, Vt., June 28. J. E. CRANE.

The clover looks well here, and the bees that had stimulative feeding enough to build up strong are doing well, and there will be a good crop of honey here.

Albany, Vt., June 27. J. M. CARTER.

Bees are not doing what they ought to. There is the most clover in blossom at present that there has been since 1893. Weather for a few days has been clear and hot. A good swarm on scales, with an empty extracting-super, gained 4 lbs. on the 27th; $\frac{3}{4}$ the 28th.

Stockbridge, Wis., June 29. ANDREW STEVENS.

There have been almost no reports from the irrigated alfalfa districts. However, there is nothing to indicate that the season has been below normal. In California the season has been reported as a failure; but the *Western Beekeeper* for July 1 has this from A. S. Wagner, of Imperial Co.:

In GLEANINGS IN BEE CULTURE, page 327, this notice appeared: "California honey crop a failure." I consider this misleading. This fact should be stated, "that certain crops were a failure." It would seem from that article that orange and sage honey were the only crops produced. Hereafter the alfalfa honey will be quite a factor in the honey shipped from this State. I am not familiar with the central and northern portion of the State; but Imperial County alone should normally produce from thirty to forty carloads of honey per year. This is not intended for a booster, but we feel that the public, and the buyers especially, are entitled to be informed of this fact.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

J. E. CRANE, p. 402, while you're about it you may as well have wire cloth with mesh just small enough so that a bee can't get through. That would be a shade less than 1-6, which would obstruct the vision about three-fourths as much as $\frac{1}{8}$ mesh.

JUNE 30 the average number of sections over each colony was 103.04, and 15.36 had already been taken off. Of course, part of those on the hives—perhaps one-fourth—were empty sections; but even so, no such story could ever be told in June before. Certainly I never knew such a flow before. One factor in the case is the alsike, which is increasing wonderfully, springing up on the roadside and other places where one would suppose no seed could have fallen.

POLLEN in sections is spoken of as a matter of location, p. 388. Isn't it rather a matter of shallow brood-combs? [Yes, the depth of the brood-chamber will have a great deal to do with the absence or presence of pollen in the supers; but is it not true that there are other factors? For example, if there are no outside brood-combs in the brood-nest in which pollen may be stored, and the rest of the brood-nest filled with brood and honey, the bees are more inclined to store pollen in the sections. They must put it somewhere. The advice has often been given to see that there be empty comb in the brood-nest next to the hive walls to catch pollen. Some of the users of shallow brood-chambers have stated that this is an absolute remedy.—Ed.]

ARTHUR C. MILLER, what you going to be up to next? The cheek it must take to tell us, p. 370, that not only may a queen be successfully introduced within an hour or so after the removal of a laying queen, but that virgins or laying workers are no hindrance. Well, there ought to be enough try it before the summer is over to know how it works. But, say; you talk about bees tolerating a plurality of virgins. You hardly mean that more than one virgin will be out of the cells, do you? Any way, it's not a question of the bees tolerating virgins, is it? Isn't it the virgins that won't tolerate one another? I suppose in one sense it might be said the bees tolerate a plurality of virgins in their cells when they stand guard over them to defend them against their murderous elder sister.

A SUNDAY-SCHOOL field-worker of Illinois surprised me by saying he thought cigarettes worse than whisky. I'm slowly coming to believe he's right. I'm pretty sure

little boys in Marengo are in greater danger of becoming users of cigarettes than users of whisky or beer. Even if the cigarette does only half as much harm as drink to its victim, if it catches three times as many victims it is the greater curse. And I'm not sure that the cigarette is at all behind drink in destroying the physical and moral stamina of a boy. I don't know how it is elsewhere; but here the cigarette seems to get hold of boys at an earlier age than drink. Somehow boys can hide cigarettes from their parents longer than drink. If the cigarette curse increases in the next ten years as it has in the past ten, we're going to be a nation of imbeciles.

AN unsupplied want is a set of grader's balances for grading honey. We have scales galore for getting the weight of honey, but we don't want to know how much a given section weighs. Take the Colorado rules. There are just two questions to which the grader may want an answer: "Does that section weigh 'less than 13½ ounces'?" or, "Does it weigh 'less than 12 ounces'?" The exact weight he cares nothing about. So he wants two balances, one having on one side of it a weight of 13½ ounces, and the other having a weight of 12 ounces. Then if the section goes down it goes, and if it doesn't go down it doesn't go. And these two balances should cost a good deal less than any single weighing machine. H. H. Root, here's a chance for your inventive genius. [A pair of balances might be made to take two different weights, as you indicate; but they would cost more than regular scales; and is it not true that it is more practicable to make three or more gradings as to weight if there is any difference?—Ed.]

"BEES can build comb in confinement, but it is a very unusual procedure," p. 388. I wonder if it is. The first package of bees I got from Medina last year had built about two square inches of comb. [Perhaps we put it too strongly. If so, we are subject to correction. Some 25 years ago Mr. Paul L. Viallon, of Bayou Goula, La., who was then quite active with bees, reported that it was with difficulty that bees could be made to build comb in confinement; but when they could fly out every day they would build it much more readily and with less stores. He was testing out the truth of the oft-repeated statement that it takes 20 lbs. of honey to make 1 lb. of wax. He found that it would take about that amount if the bees were confined; but if they had

their liberty it would take a great deal less. His figures were between six and seven pounds. Just how he could take account of the nectar brought in and converted into wax, we do not now recall. Perhaps some one has definite figures that will bear on this question.—Ed.]

THE *Vindicator*, a Prohibition paper, has a "vision" of all the opponents of the liquor-traffic getting together as one body in the more or less "near future," based on the idea that the Anti-saloon League meditates constitutional prohibition for the whole country. It thinks that will necessitate separation from all parties not committed against the saloon, and that Anti-saloonists and Prohibitionists will unite as one party. That "vision" may or may not be an idle dream; it seems unthinkable that the enemies of the saloon shall go on for ever making faces at each other in two separate camps. As a consistent Prohibitionist, lo! these many years, I'm ready to vote that, if the great body of Anti-saloonists can make good use of the machinery of the little Prohibition party, they can have it at a bargain; or if the Anti-saloonists organize a political party of their own, I vote to scrap the machinery of the Prohibition party, and crawl under the canvas to get into the tent of the new party.

JUNE 11 I saw something new to me. Bees were bunched on the front of No. 54 as if it might have recently swarmed and returned. My assistant opened the hive to look for the queen, leaning the super, which was very full of bees, against an adjoining hive. Happening near I saw the bees beginning to leave the super, not in the ordinary way, but pouring out like a swarm. I said, "The queen has gone up into the super, and that has induced the bees to swarm out of it." So I began to look on the ground for the clipped queen; but my assistant continued her search in the hive. Presently she said, "You needn't look any longer for the queen; here she is in the hive." Sure enough, there she was. The bees sailed around a while like any other swarm, and then returned, not to the super, but to the regular hive-entrance. All this while the bees in the hive were quiet. Now, what did it all mean? Had those bees in the super failed to swarm out with the bees in the hive and then decided to swarm on their own account afterward, or how was it? Don't tell me those bees were not swarming. There's a lot of things I don't know about bees; but I know a swarm when I see it is issuing, and I know that was a swarm. [There are some things about the causes that induce a swarm to light out that

we do not understand. Years ago we heard a zeep, zep, zeep, in front of the entrance. Presently the queen came out, and then with her the bees. At other times the bees apparently take the initiative and the queen follows. When this takes place, some sort of signal or commotion is needed to start things going. Apparently this signal, or whatever it was, was given in that super, and apparently, too, that signal was not communicated to the brood-nest. This is a place where most of us will have to say, "I don't know." If any one does know what the exact procedure is that induces a swarm to hike out suddenly from the hive, let him tell us.—Ed.]

J. L. BYER, you ask, p. 439, whether in five weeks bees will scoop out enough of a winter nest to accommodate even one quarter of the bees. I don't know. I doubt if they will. Yet even that small space is enough for that editor to claim that they have a brood-nest. But let me say something that I do know. I know that empty cells—in other words a brood-nest—are not needed for all the bees. In winter I see a big cluster of bees hanging below the bottom-bars in some of my colonies; and the bigger the cluster the better it looks to me. Below the bottom-bars is surely outside the brood-nest. Now if those bees—possibly a third or more of the colony—can winter all right outside of any brood-nest, you ask that editor why it isn't possible for the rest of the colony to do the same thing. [Doctor, you are confusing the issue. You are talking about indoor wintering. It is perfectly practical for bees to cluster below the frames when they are in the cellar; but did you ever know of a case of their doing so when the hives were outdoors in cold weather? We have contended that a small winter nest below the honey is important in getting good results in outdoor wintering. This winter nest will gradually enlarge.

It is hard for us to believe that solid combs of honey—combs an inch thick, dividing up a cluster of bees when wintered outdoors, is an ideal condition. A colony that is wintering nicely outdoors has a winter nest. The bees are thickly crowded in the cells, and the only separation is the walls themselves and the midrib on the combs. Such a condition is natural, and allows the heat to be communicated from bee to bee, while solid slabs of honey an inch thick act as a non-conductor, breaking the cluster up into a series of thin slabs.

In talking about this winter nest, do not confuse outdoor and indoor wintering—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Bees have been greatly reduced in strength here in Vermont for lack of stores this spring. Consequently queens have stopped laying, or at least brood-rearing has been checked, so the force of workers for gathering the harvest of nectar when it comes will be small compared with what it would have been if there had been a good supply of honey in the hives, or if the weather had been such that the bees could have gathered any outside of their hives.

* * *

The spring here in northern New England was peculiar. It was warm in April, while May was very cold, and it continued cool up to June 15. Nearly all fruit except in favored places was ruined. The bees were strong May 1, but by June 1 about half were in a starving condition unless they had been fed. Very few yards have been fed as much as they needed, and so we have a shortage of brood. Where only a few colonies are in one yard they have done much better. This shows very conclusively that in the cool weather of spring bees go only a short distance from their hives, and a few will thrive where a large number will starve, while in warm summer weather a large number will do nearly as well as a few colonies in a yard.

* * *

I believe the most valuable article in the issue of GLEANINGS for March 15 is the editorial by A. I. Root under Our Homes. The subject is one that fathers and mothers find it difficult to talk to their children about, and yet a most important one. I believe those somewhat along in years can see the evils to individuals and society that come from sexual excesses far better than younger persons. As they look over the past, and remember the multitudes that have gone down to death from this cause, they are ready to cry out, "How shall the young be warned of their danger?" I have thought that, if some wise and kind-hearted physician of large experience could tell in a short treatise of a few pages the danger that comes to young people, depicting the sorrow and suffering in store for transgressors, no better work could be done for humanity.

* * *

AMOUNT OF SUGAR TO FEED TO SECURE A POUND OF SEALED STORES.

On p. 253, Apr. 15, Mr. Byer gives some facts on the value of sugar syrup compared with honey, and I can say that they are correct. I conducted quite extensive experiments a few years ago along this line in

order to find out just how far a pound of sugar would go; and, very much to my surprise, I found I could get only a pound of syrup sealed in the combs for each pound of sugar fed; and that a warm solution of two parts of sugar to one of water must be fed to secure that. If fed cold I got a small fraction of an ounce less; and when I fed half sugar and half water I got only $14\frac{3}{4}$ ounces, approximately, to each pound of sugar, sealed for winter stores.

* * *

DOES NECTAR FROM THE SAME PLANT VARY WITH THE SOIL?

Some years ago I scouted the idea of any given plant producing one quality on one kind of soil and another quality on a different soil. It begins to look as though my theories would not hold. I am told here in Florida that sugar-cane grown on rich low hummock land produces a very different syrup from that grown on high sandy land; also that the same varieties of oranges grown on low rich land are very different from those of the same variety grown on higher land. If the fruit is different, why should not the nectar of the flowers be changed to some extent also? It seems reasonable, and yet I am slow to believe the change is as great as some honey-dealers would have us believe.

* * *

VALUE OF INSECTS TO THE FLOWERS.

Mr. Geo. H. West gives us many interesting facts in regard to the value of insects in the fertilization of flowers. It is surprising to note the amount of information that has been brought to light since GLEANINGS took up the subject in a symposium some years ago. May I add one more fact along this line that I do not remember to have seen in print? Last winter, while waiting one morning I amused myself by examining some flowers of the sweet-scented jessamine that I had heard about from my childhood, but do not remember to have seen before. The first flower I examined carefully I found had a well-developed pistil, but no stamens in sight. This seemed queer, and so I looked for a mate and soon found another flower with well-developed stamens but no pistil in sight. Evidently insects must do their work or the flowers could not become fertile. I found on tearing the flowers apart that, where no pistil or stamens appeared, they were held back or underdeveloped only to mature a little later, and again to be cross-fertilized by insects.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

I am quoting the following from a letter just received from Mr. Geo. L. Emerson: "We certainly are having our share of hard knocks this year. The Governor did not sign our bill—so little rain, the frost, raise of freights on all bee commodities, to say nothing of tariff revision and consequent unsettled conditions. It takes a good deal to starve a beeman out, though, and I believe most of us will bob up after the flood settles down to a steady stream." Mr. Emerson is right. Let a good season come, and every beekeeper in the State would bob up, proud of his business, and would be telling every one he met how much he had made (with the possible exception of his creditors).

* * *

The best colony in my yard this season was a golden Italian. The second best, that of an impurely mated daughter of this golden. I have had goldens that were not worth introducing, that were apparently bred for color alone. But this one I purchased from an eastern dealer who advertised his queens for business as well as color. I purchased three for a tryout. One was a complete failure; one fair, and the other was the one just spoken of above. I am partial to the goldens, and see no reason why there could not be a strain bred from select stock that would be the equal of any strain, race, or color. Possibly one reason why they are liked so well by some beekeepers is because they look so much like gold that they look well during poor seasons when gold is scarce.

* * *

In a letter just received from Mr. M. J. Meeker he says: "I am surprised to see your quotation from Mr. Bixby's letter, p. 404, June 15. I think in fairness you should have made two other quotations." As Mr. Meeker has not given the quotations in full in his letter, and as he has the copy of Mr. Bixby's letter, I will give the quotations from memory as nearly as I can:

"This is no job for a tyro. I have been fooled myself. Also, I lost three-fourths of one yard from black brood when it struck this locality in an epidemic form in April."

I had intended no offense to Mr. Meeker, and I think those who care to read the matter in question will feel that I have not been unfair. I felt somewhat elated to know that there was a possibility that we were not so close to the disease as had been reported; and while I think Mr. Meeker is

doing excellent work as an inspector for the experience he had had up to the time he assumed the office of inspector, I feel that Mr. Bixby is one of the very best authorities in the State on black brood, so far as my knowledge goes.

* * *

In a late issue I mentioned having cured a case of paralysis by transferring the colony to a clean hive on clean combs (empty) and foundation. I also mentioned the fact of having another badly affected colony with which I was experimenting. I let it alone until there were scarcely bees enough to cover four frames, and then treated them the same as the first ones, but to no avail. They continued to dwindle until I was obliged to supply them with hatching brood to keep them going, meantime giving them another queen. The disease ceased after the original bees were apparently all dead; but my cure for the first colony proved of much less value than I was led to believe by their rapid recovery. Many beekeepers claim that this disease is worse where pure stock from breeders is introduced; but of these two, one was a pure-bred queen from a California breeder, and the other a native queen decidedly hybrid.

* * *

In the June 1st issue I spoke of our foul-brood bill having passed the legislature, which was correct; but it did not pass with our Governor, so we have been defeated after victory was in sight, and must now make the best of the law we have until we can do better. Many of our beekeepers will be sorely disappointed in having this bill defeated, and will blame the Governor for its failure. The blame doubtless would be correctly placed; but there are some reasons for its failure which can be traced to the legislature.

Early in the session just closed, the Governor gave the legislature warning that the formation of new commissions would not be looked upon with favor by him; further, that appropriations must not exceed the revenues available without extra taxation. The legislature passed several bills of the kind, among which was our bill, which, unfortunately for us, created a new commission in direct opposition to the warning. We, of course, did not know what the attitude of the Governor would be when the bill was drafted and presented to the State convention, and I suppose those who had the matter in charge at Sacramento did not

Continued on page 485.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

There is an active demand for bulk comb honey in the Texas markets, while the demand for extracted honey is "on the bum," as a number of extracted-honey producers have recently expressed themselves. There was a movement on foot several years ago, by several extracted-honey producers, to induce more beekeepers to produce extracted honey instead of comb honey, and then educate the people to the use of extracted honey. I did not favor this, and, instead, went into exclusive bulk-comb-honey production. I made no mistake, since the market demands an enormous amount of bulk comb honey over extracted honey, and that at a good price as compared with extracted-honey prices.

A beekeeping friend told me that he would just as readily have extracted honey of the same source as comb honey, on his own table, although we had to produce comb honey for the most of our customers. I do not agree with him, for I prefer comb honey to extracted honey from the same source, not because I like the comb or even the appearance of it, but because the honey itself tastes differently from that which has gone through an extractor. Honey just removed from the comb with the knife, and immediately eaten with your hot biscuit or bread, has all its delicate flavor and aroma, which makes it a delicate morsel. Take the same kind of honey, extracted with the machine, and it is not the same delicately flavored article. The agitation, and stirring effect upon the honey that has been "through the mill" is responsible for the loss of that delicacy and newness of flavor and aroma of our fine-flavored honeys. A certain change takes place; and a little experiment, that of taking a spoon and rapidly churning some of the fine-flavored liquid honey, will result in quite a different-tasting article.

* * *

HOME-MADE OR MANUFACTURED HIVES.

Every little while somebody asks whether it is not better and cheaper to make one's own hives and supplies. It may be a little cheaper to do so considered from the standpoint of the first investment; but aside from that I find no advantage—quite to the contrary. Especially is this so here in the South, where, first, we have not the suitable lumber for hive-making at a reasonable price; and, second, hives made with the lumber we have do not stand up properly. Therefore home-made hives are either too expensive on the one hand or too unsatisfactory on the other. My own experience

has taught me this, as I thought at one time I could make cheap and serviceable hives of my own. I have seen hundreds of home-made hives; and while they serve their purpose in a way, it is very disagreeable beekeeping indeed that goes with such hives.

The main trouble is that such hives warp, twist, or turn out of shape in all sorts of ways, even if they are made ever so carefully and expensively. All kinds of trouble confront the beekeeper at one time or another with these "leaky" hives, which let either the weather and rain or robber bees in, *but do not keep the inmates in*, just at times when this is most necessary. Besides, the apiaries composed of home-made hives never look so neat (except in the case of the very few exceptionally carefully home-made hives, which, however, are very much in the minority).

If any thing must be home-made, the bottom-boards and covers can be made well enough. But the hives and supers, and especially the inside fixtures, are better bought, and every thing will fit so well that rapid and more agreeable manipulations year after year will be worth enough more to pay the little difference between poor home-made hives at the best, and good hives purchased from a responsible factory. Bad indeed are hives and frames that do not fit exactly.

Continued from page 484.

feel at liberty to hash it up until it had no resemblance to the bill as sanctioned by the State convention. There were about one thousand bills which passed the legislature; and if press dispatches are correct, less than half of them were signed. Those passed carried appropriations nearly double the amount available from normal taxation, so the responsibility fell on the Governor, who had to trim them until they would fit the State treasury. We are not the only disappointed bunch. There was one bill affecting this county to the extent of \$85,000 that met the veto. I regret the loss of our bill as much as any one, for I think it was just what we wanted; yet I do not feel that, under the circumstances, the Governor should be blamed altogether.

My bees are very strong, and the swarming I had been able to control for several years has "broke loose," and they swarm in large, massive clusters, mostly after 4 o'clock. Well, I thought I had them, but I have another guess coming.

Bradshaw, Neb.

C. B. PALMER.

Conversations with Doolittle

At Borodino, New York.

KEEPING COMBS THROUGH THE SUMMER.

"How can one keep surplus combs during the summer months? I have no trouble in keeping them up to July; but from then on to the middle of September, or when the weather turns cold for fall, I am troubled with the larvæ of the wax-moth getting into them and often ruining a part or all of those which are not held by the bees."

"The keeping of combs through the whole year, at any time when there are not bees enough to occupy them, from winter's loss, sale of bees, or any other cause, is something which sooner or later confronts every apiarist. Half a century ago our fathers melted up all combs for the wax they contained if they had not bees enough to give sufficient swarms so that they might be hived in them; these fathers knowing full well that the hives containing such combs would hold only a mass of cocoons and webs in the fall if they tried to keep them over.

"Four decades ago some one found that combs could be kept indefinitely by subjecting them to the fumes of burning sulphur, of sufficient strength to kill the wax-moth and its eggs, provided the combs were then kept in a moth-proof room or repository.

"A little later it was found that, if the combs were exposed to the air and light, each comb being separated from the next by two or three inches, all those not having pollen in them could usually be kept perfect throughout the summer months without further attention. By giving those having pollen in them to the bees, little loss ever occurred where the room in which they were stored had plenty of windows to furnish air and light. Where the combs contained honey, it was necessary to use screens at these windows in order to keep the bees from carrying this honey off.

"Then some sharp-eyed and keen-scented person, given to close observation and experimenting, discovered that any comb which was subjected to cold from fifteen to twenty degrees below zero would be free from the ravages of the moth forever afterward, provided it was stored in a moth-proof place. Such a degree of cold killed even the eggs which might have been laid during the warm days of late fall. Thus, step by step, knowledge was gained, until at the present time no well-to-do apiarist thinks of melting up combs for the wax they contain, with no other reason for doing so than the fear of their being destroy-

ed by the larvæ of the wax-moth, if he has a room that can be sufficiently ventilated so that the temperature may fall below zero on some winter night.

"When I began out-apiary work I found that a room was not necessary for this purpose; for after a trial of several years I concluded that the very best place to preserve empty combs was in the hives. But I think I hear my questioner saying, 'Do not the moth-worms destroy the combs in hot weather when they are left in the hive out of doors? No, not if the hives containing them are piled up in such a way that the moths can not get into these hives after the combs have been subjected to cold of sufficient amount to kill all life in the eggs or larvæ. The combs must, however, be wintered out of doors, or where they will freeze. As we have plenty of zero weather in this locality every winter I have said 'zero;' for I have not experimented with a warmer temperature. It is possible that less severe cold would kill the eggs. Perhaps some of the friends further south can give their experience in this matter. Of course, the reason the worms do not destroy such combs when treated as indicated is simply because the eggs that produce them have been destroyed by the freezing during the winter. This plan of preserving empty combs will not work, of course, except in latitudes where freezings are sufficiently severe to destroy the vitality of all that pertains to the bee-moth.

"When the extracting is done for the season, the combs can be put back in the supers, and these set under the brood-nest so that the bees may remove the honey which may remain in them. It will not be necessary to disturb them again until the bees are prepared for winter. These supers of empty combs are now piled up out of doors to freeze during the winter, and there they remain till wanted again, whether the next season or ten years later. Hives of reserved combs of honey are piled up in the same way, and I have never found any worms in or among such combs when thus treated, even where the combs are packed in as closely as the hives will hold. I think it best, however, to remove one or two combs from each hive, and then place the others at about an equal distance apart. In this way surplus combs can be kept the year round, thus saving the labor of carrying them in and out, also the expense of providing extra room for them, and they remain bright and free from mold when in hives properly made."

General Correspondence

BEES AND THE RAINBOW—A COLOR STUDY

A Reply to John H. Lovell on Page 60, Jan. 15

BY ARTHUR C. MILLER

I know that I am quite likely to have a Lovely time, but I like 'em. I am a most peaceable man, and dearly love a "scrap." There is only one thing finer than a Donnybrook Fair, and that is another one. If you never attended one it is high time you did. You will get a jolly good broken head.

Well, my coat is off. Are you ready, boys? Go! "Why do bees dislike black?" They don't! No, sir; they don't! Did you get that?

Who said they did? Well, Lovell said that Crane said that it was "the almost universal opinion." I knew it, I knew it!—just plain hearsay evidence—the kind they hanged witches on. And here are some of the hearsay proofs: "Twelve chickens running in a bee-yard; seven black ones are stung to death while the five light ones escaped." Do you know where the light ones came from? I'll tell you. Their feathers turned white from fright and saved their lives.

"A dog with a black rump is badly stung on that part." Sure, why not? The bees were after that wagging tail. "Never strike at a bee."

A white dog and a black dog ran among the bees. The white one did not attract *much* attention, while the black one was furiously stung. Please, how many stings are embraced in that "much?" To have that proof good for any thing, the dogs must swap either skins or dispositions.

Then there is cited a black hat "literally decorated with stings." Humph! Probably out of style, and the lady bees resented such a thing in their midst. A black hatpin caught it. Probably longer than the law allowed. Black stockings peppered. Men's or women's? Whole or darned? Those points should be specified, for they have a bearing on the pepper.

So much for your whacks. Now take these:

Bees *like black*. They just revel in it. They get so tired of sailing on the waves of light in their search for grub that they rejoice to get into the black where there are no waves. We enjoy sailing on the bright blue waves ourselves; but the bees find too much of them depressing. Now, red they rather like. "Red in moderation is a warm and stimulating color, but in excess it becomes an irritant." I've heard it said of "wine when it is red," and all you beekeep-

ers know how fond the bees are of fermented drinks. Obviously, after a surfeit of the "reds" black is most soothing. But look out for their tempers "the morning after the night before."

"Way down East" the bees voice no antipathy to black winter cases. Being inside of them in the winter, naturally they do not.

"A black surface in bright sunshine is several degrees warmer than a white one. This additional heat may also exert some influence in attracting the attention of the bees, though it is doubtful." Do you hear that, E. R.? Just reread it. It has only a little to do with the bees' consideration of black, but a whole lot to do with good wintering, as I've told you a lot of times. We are not talking on wintering, so you are not to mention it in your footnote; only just remember "I told you so."

Down in this locality we have our telescope covers black—a real pretty dead black, both *summer and winter*, and sitting right out in the sun too, which is the exact opposite of what all the Solons of beedom say should be, and that is why I did it. Oh! they are a success, and the bees fairly *love* those black boxes. On their return from an early morning scramble in the cold dew-covered blossoms you will find them warming their chilled toes on those nice warm black covers. As I said before, bees just dote on black. But they dislike brown and blue and white and red and a whole lot more colors. Oh, yes! it is so, and I'll prove it.

My friend 'iggins (his real name is Higgins, but he is English, and his *hatches* bother him, so he drops them), well, as I was saying, 'iggins has a real nice soft brown felt hat—one of those mellow woodsy browns at the start, and more mellowed by the wind and the sun till it so resembles brown leaves that, when he throws it down in a corner of the beeyard, 'tis hard to see—at least for him, and he is always looking for "that bloomie" 'at," for he keeps it anywhere but on his head when in the beeyard. That hat is so full of stings that he had to sandpaper the points from the inside in order to wear it.

If you will come on here I'll get 'iggins to let you try his precious hat for a few minutes. Two or three minutes will be quite long enough to suit you.

Pat, the friendly helper at one of the yards, usually wears a black shirt and a pair of old blue overalls. Pat is a pretty good beekeeper, and the bees are kind to Pat. A bright small boy on the place was

interested in the bees, so he donned overalls and jumper of the same blue material as Pat's overalls, but brand-new. Also he had on a good wire bee-veil, and tucked his hands deep into his pockets. Pat and I were busy when the small boy sailed in joyously, telling of his outfit. Very shortly there was a wail as of fear, and, turning quickly, a sight met my eyes that frightened me, seasoned veteran that I am. Those blue garments were almost hidden under a seething, hissing mass of stinging bees. Literally thousands of them fastened by their stings and thousands more were coming from everywhere. Italians, hybrids, blacks, all were at it. I grabbed the boy in my arms and fled. I took him indoors and killed every single bee before I dared remove his veil or garments.

Since then I have found that bees always assail that kind of cloth when it is new. Probably the odor of the dye is the cause, for it has a strong and peculiar odor.

One old man who is very fond of bees is also fond of old-fashioned red handkerchiefs—"bandanas." He used to wear one around his neck, but the bees just loved to pepper it, and now he doesn't wear it so any more. The bees sometimes missed their aim, and he "got it in the neck," you know.

White gloves, particularly after once or twice wearing, are used by the bees for pin-cushions. Unfortunately, the stuffing in these pin-cushions is alive, and wiggles as the pins come through, and it bends the pins.

Black bees for a few hundreds or thousands of years have managed to survive without stinging each other to death despite their color. When a few Italian queens are put in an apiary of blacks or Carniolans or Banats, we do not find the Italians stinging all the black-colored bees to death. On the contrary, if we do not meddle, it is but a few years before the Italian blood has vanished. You see the bees love black.

A small apiary is located in the middle of a large apple orchard, which is kept tilled by a hundred or more hogs big and little. The apiary is surrounded by a wire hog-fence which, while it keeps the hogs from getting within two feet of any of the hives, does not keep the bees from getting out. Most of the hogs are white, and perhaps half a dozen black or spotted. The bees never molest any of the hogs, either black or white, no matter how cross the bees are with the beekeeper.

Another apiary is located beside a cow-pasture by the corner near the barway, and there, of course, the cattle congregate. Rarely does a bee bother a cow, and the black Holsteins are quite as safe as the red or

red-and-white cows. (Those bees like that shade of red.) But a pair of gray mules always make it a point to pass the apiary on the double quick.

In an apiary of about one hundred and fifty colonies in the State of New York there roams a cow—not that the beekeeper likes the cow or dotes on aroma, but the only place for his bees was the cow-pasture. The cow is a Jersey with black muzzle and black brush to her tail. It is a pet cow, a dear sweet thing to the family, but a confounded nuisance to the beekeeper, for she is forever nosing around when he is at work with the bees. The bees apparently do not know the cow exists. They will sting the beekeeper, but not the cow, not even her waving black brush. I know, because I watched. You see, the bees *like* black.

An apiary in North Carolina is owned and operated by a *black* man, not one of the chocolate-brown blacks, but a real black black. Did his bees constantly assail him? Not so I could see it. On the contrary, I got the stings. If bees emerging from a dark hive see a black object more readily than a white one, they should have attacked him rather than me, confound them!

It is a question whether the sudden change from dark to light or *vice versa* affects bees' vision at all as it does ours. Every observation suggests quite the contrary. Flashing light attracts their attention. The shiny-black hatpin head, the sudden removal of shutters from a glass hive, etc., are examples; but apparently it does not affect their vision.

In one of my bee studies I experimented with a house of white cloth. In dimension it was nine feet cube. It was all white. Even the floor was covered with white cloth. The hives were white, and I donned a white duck suit and white duck hat when at work in there. Most of the time the hives used were of the baby-nucleus type, about eight inches cube with a half-inch hole as an entrance.

Were the bees confused when they emerged from the dark interior of the hives into the brilliant white room? So far as could be seen, no. Following are a few of the interesting things observed:

The bees—workers and drones—would come out of the hives, circle once or twice without touching the cloth walls, and then shoot across the room bang into the north wall, and always above a certain level. I was puzzled until I took a position so that my eyes were on a level with the position from which the bees started, then I saw distinctly the line *over* which they were flying or attempting to fly. That line was the hazy and irregular horizon formed by trees

about a dozen rods away. Below that horizon the wall appeared a faint gray (dilute black), and above it strong white. Why they tried to go that way instead of through the brilliant east wall (morning observation) I do not attempt to explain.

The house was then covered with another layer of white cloth with a space of one inch between the layers. The bees at once ceased the attempts to go over that tree-line, for it was no longer to be seen; but they did something else. In the early morning, say from five to seven o'clock (mid-summer observations), they started for the "bright spot" where the sun was to be seen through the east walls. When the sun got more overhead they flew about freely, working on food in the center of the room and carrying it back to their hives.

The hives were placed on the floor close to the walls, entrances all pointing to the center of the room. Sometimes there was only one hive, sometimes four or five. The hives were all alike; and when four were used one was in the middle of each side of the room, yet the bees and virgin queens always found their way into their own hives. How did they do it? I am not answering that question. It is up to you.

One day when showing the work to a guest, I had to do more or less talking, and several times bees flew toward my eyes or mouth. Several times when in conversation in the apiary I have had bees fly into my mouth, and been stung on the tongue—hot sauce, I can assure you—really quite ahead of Tabasco. Why did they go for the relatively dark cavity of the mouth? Did they see the red? Or was it the wagging tongue?

In the cloth house, bees tried to go through black or dark objects, resulting in bumping their heads and making them fussy. Then they would back off, come up slower, and apparently "feel their way" up to the object. If it was a hard substance they sometimes hit it forcefully enough to stun them. If it was fuzzy like black felt they sometimes, after hitting it, would hover angrily before it.

My interpretation is this: Bees do not readily measure their distance from black objects, and in rapid flight strike them before they realize they are close to them. Irritation, of course, follows; and if the slightest hint of poison was deposited on the object, or the object has an odor or motion, the bee pitches in to "do up" the fellow that hit it.

If any object, regardless of color, gets an odor of bee-poison on it, bees will surely assail it as soon as that odor is perceptible to them. If the object is a hat or gloves or some other garment, only two courses

are open as a remedy—namely, deodorize the article or change to clean ones. The odor of bee-sting poison is quite tenacious, and not easy to obliterate.

The bee's sense of smell is much keener than its sense of sight, hence it behooves us to keep on apparel free from sting poison. Once let gloves or hat get well scented with it, and your name is 'iggins.

We all know how peevish the bees are after a storm, but how many know the cause? It is this: The bees' nerves are rasped by the colors of the rainbow. Rainbows are perfectly beautiful, but the color waves make the bees so seasick that they just want to die, and you are the opportunity.

Providence, R. I.

BEES DISLIKE BLACK FURS BECAUSE THEY RESEMBLE BEARS

BY FRED J. CARTAN

I have read with considerable interest the article by John H. Lovell, "Why do Bees Dislike Black?" and while he may be correct I have often thought that the anger aroused in bees by the appearance of any black hairy animal was a survival from past ages when the ancestors of our little friends made their homes in the trees of the forest as well as under ledges, and perhaps in the ground.

During the time I have lived in Oregon I have found a good many bee-trees; and to the best of my recollection every one bore the mark of bear-claws. Some of them (old homes of bees) had been visited many times by Bruin in a vain endeavor to despoil the inmates of their stores of sweets. It is a well-known fact that bears are very fond of honey, as well as of the brood and even fully developed bees.

I have a neighbor living near one of my beeyards who, two years ago, had several stands of bees located about a mile from his home. They were found by a bear; and from the "sign," Mr. Bear had made several visits and had devoured every thing but the hives and frames. He had picked up the hives in his "arms," and carried them over a common rail fence into the brush, and no two in the same place.

Now, the black bear is a tree-climber, and is widely distributed over the earth. That the wild bees have had to fight the black bear for untold ages will not be doubted by any one at all familiar with the animal's traits. This being so, would it not account for the bee's hatred of black, and especially of a black furry animal? I am inclined to think that it is a survival, the same as their

actions under smoke and others that we are familiar with.

Corvallis, Oregon.

A BLACK HAT THAT PROVED TO BE A TARGET FOR THE BEES

BY THE BEEMAN

Three years ago I hired a man to help take off the honey. It was after the flow was over, and the bees are cross when there is no flow. We wore veil and gloves. The hum of the mad bees soon attracted my attention to his black hat. The bees were not bothering me; but the black hat about four feet from me had nearly a dozen stings, and the bees were very mad. We left the yard, and I brought out a straw hat for him. We went to the same place in the yard to work, and the bees did not bother us. A few days later he went with my brother to an outyard, and wore the black hat. He put on a veil and left off the gloves. The bees attacked him at once, and they soon found his hands. The next day his hands were swelled badly. My brother did not have his veil on; and the bees, being mad, attacked him, and then he put on a veil, and took the honey and carried it to a wagon, as the man with the black hat could not go into the yard.

I have been run out of the beeyard on account of my black hat a number of times. We wear veils only when the flow is poor; and if I stop in the yard to see how the bees are working they soon find the black hat. I will not buy another black hat while I work with bees. Sometimes I get stung while walking through the yard without stopping; and when I am going to the yard, if I have the black hat on I change it unless I forget it.

Chamberino, N. M.

A CONVENTION OF LAYERS

Requeening; Laying Workers

BY R. F. HOLTERMANN

One evening when visiting Mr. Hardy in New York the question came up regarding requeening apiaries. Mr. George B. Howe considered queens up to two years of age quite profitable, of course requeening whenever any showed signs of failing powers.

Messrs. Howe and Hardy considered the month of October a time when bees accept a new queen very readily. Mr. Hardy had often successfully introduced a queen at the entrance, running her in during the early cool morning, and Mr. Howe said that he

had frequently introduced queens to queenless colonies by running them in at the top of the hive in October in the early morning.

MATING OF QUEENS.

In 1908 Mr. Howe had three queens mated twice. Three days after the first mating they mated again and laid three days after the second mating. Mr. Howe had eyewitnesses to this at the time. Normally in a honey-flow queens lay three days after mating; but it is dangerous to consider a colony queenless, even if no eggs are in the hive for quite a time after a virgin queen hatches. He had known of a Carniolan queen not laying until three weeks after she emerged from the cell. Italian queens are often slow about mating and laying. If such queens were too slow, he found it best to destroy them. Virgin queens often come out several times to play in front of the hive before going out to mate. Mr. Howe said that queens would sometimes be drone-layers when they began laying, and would become normal queens afterward.

LAYING WORKERS COME FROM OVERFEED LARVAE.

A discussion took place upon the subject of laying workers. Mr. Howe's many years of experience with bees warranted him in making the following statement: "You never find laying workers in queenless colonies in the spring. Some varieties of bees are more liable to have laying workers than others. Those more liable are those which feed the larvæ more.

"If during the breeding season you kill a queen and destroy all the queen-cells after seven or eight days, then fertile workers will develop; but I never had a case of fertile workers in a colony of black bees. In a Carniolan colony, if you kill the queen and then destroy all queen-cells, after eight days laying workers will soon develop. I have seen in such a colony as many as 50 or 60 laying workers. I have quite frequently seen them back down in the cell to lay. The normal workers in a colony will feed the laying workers. The latter are plumper than ordinary workers. I find fewer laying workers among Italians, and none at all among the blacks.

"I believe that overfed larvæ, when the colony is hopelessly queenless, produce laying fertile workers. A colony having no brood when queenless can not overfeed larvæ to produce fertile workers."

The writer suggested that the reason why there are so many eggs in some cells in which laying workers laid was because, unlike the queen, the workers do not examine them before they lay in them. To this, both Mr. Hardy and Mr. Howe assented.

Brantford, Ontario, Ca.



President Collins showing a thrifty, three-year-old queen. When bees are gentle Mr. Collins never wears hat, gloves, nor veil; and where is the smoker?

SOME BEEMEN I HAVE KNOWN

Introduction to the Series

BY WESLEY FOSTER

One can not fully understand the principles of beekeeping which enter into the success of a beekeeper unless he knows something about the man mentally, morally, and physically. The man is the factor to be considered. In these little biographies I hope to give my readers a more or less accurate view of the men involved, and, by so doing, bring out to view the reasons for their success with bees. If one can see the man he can see why and how he raises good crops of honey. And then, again, one is more interested in the men than in their bees, any way. 'Tis human nature to want to know our fellows.

I can not write of these men's faults. The faults do not add to their success, and will not be mentioned.

In telling of the men I will drift into a description of their work and surroundings, which is inevitable. Psychology has declared that a man's clothes are literally a part of him, the same as his body is; and so I shall consider that I am treating of a man's personality when I tell of his apiary, auto, honey-house, smoker, or hive-tool. We are now off for a merry visit with the first one of our friends.

W. P. COLLINS, BOULDER, COLO.

In the year 1898 or 1899, upon my return home from school one evening my

father was talking bees with a stranger in the road that passed our house. This stranger had a thin bony frame, and the clothes he wore accentuated the angularity of his frame. He leaned against his bicycle and told of his beekeeping experiences in Wisconsin, from which he had come but recently—bringing fifty colonies in a car with his household goods. Father talked foul brood with him, and the peculiarities of Colorado as a bee country. This stranger with withered and freckled face, large features, and sandy hair, soon proved to be a good talker, with a brain working like chain lightning. He talked bees and socialism, telling of the initiative, referendum, and recall in Switzerland, and other phases of the socialist movement too numerous to mention. He was the first socialist I had ever met. A graduate of Wisconsin, coming out west to practice law, and bringing fifty colonies of bees with him, such was and is Mr. W. P. Collins, now president of the Colorado State Beekeepers' Association. He has increased his beekeeping interests, and still practices law on the side, and works in socialist propaganda at all times.

Mr. Collins is a fast worker, as any one will soon realize who works with him for a day. His system of work is to do the most important thing as it comes to hand. I want to tell a story that may have grown by retelling before it reached my ears. One day during honey harvest our sandy-haired friend brought in a load of honey, unhitch-



An outdoor colony in the top of a turpentine tree. Photographed by W. H. Nixon, Manning River. From V. J. Everingham.

An amusing and common sight to Boulder residents is that of Mr. Collins, clad in white coat, shirt, and trousers (his regular apiary togs) riding home on his bicycle with the smoker strapped to the handle-bars, puffing away as if it were the motive power. The rest of us beemen here in Boulder are so common in appearance and actions that we are unnoticed; so Bro. Collins in the people's mind is the king-bee of the vicinity. When he loads a car of honey the papers say, "W. P. Collins, the bee-wizard, is loading a car of honey," or "Collins, the beeman, reports heavy losses of bees," or "has had a good crop," etc. He is the type for the publicity man. That's the reason I am writing about him.

President Collins operates about 700 colonies of bees at Boulder, and is interested in 400 colonies more at Rifle, on the western slope, 300 miles distant. He harvested 400 cases

ed, put out the team, and went to supper. During supper some one over town called him up on the phone and asked to see him on a matter of business. Mr. Collins met the appointment, and did not return until about eleven-thirty, when he thought of that load of honey still on the wagon, and that another load must be brought in on the morrow. So he began carrying in the honey. An elderly widow living close by saw dimly in the faint moonlight a figure going in and out of the honey-house. Thinking that a thief was at work she called up police headquarters. Two patrol men came down and caught the thief with the goods on, hustled him off to headquarters, waving aside his protestations as ridiculous that *he* was the *owner* himself.

this season from these western-slope bees, and made but two trips to do it. That's going some, but Collins always "goes."

As a presiding officer President Collins is unexcelled. No time is wasted at the sessions of conventions when he is in the chair. He has been president of our Colorado Association for six or seven years.

Brother Collins is a great joker; and if there is any thing above socialism and bees to engross his interest it is just plain "josh." He is generous, kind-hearted, and liberal. He will not quibble over microscopical points, but is ready with wit and cutting invective when he lets himself loose on some question he deems important. There is nothing selfish in his makeup, and he is a good neighbor, loaning any thing he has

that you can use. He can beat an opponent in debate by throwing out arguments with gatling-gun speed. First the opponent becomes confused, then flees amid the cloud of smoke that engulfs his hazy mind which can not grasp nor connect the various points of the onslaught.

President Collins is an effective institute speaker on bees. He has enthusiasm, and gives life to any thing he tackles.

Boulder, Col.

COMB BUILT IN THE TOP OF A SMALL TREE

BY V. J. EVERINGHAM

The photo shows comb built in the top of a turpentine sapling by a colony of bees. There are seven well-formed combs, containing a fair amount of brood and honey, with a fairly strong colony of bees.

They were photographed a year ago last June; and, judging by the way they have built up, they must have taken up their abode there the previous summer.

We took the combs from the branch and grafted them into Hoffman frames, and so far they are doing very well.

Taree, Manning River, N. S. Wales.

FERTILIZING QUEENS AT A MATING STATION

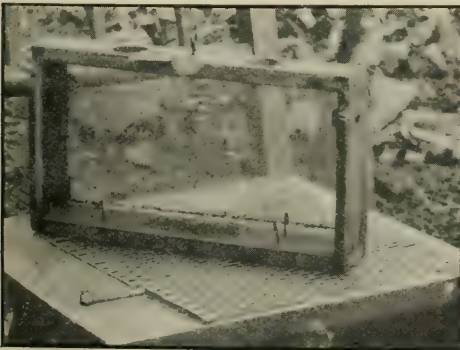
BY DR. BRUENNICH

In the years 1870 to 1880 the beekeepers of Switzerland were troubled badly by the *crossing fever*. They thought that, by mating a black bee with a Carniolan or an Italian, the good qualities of the parents would be inherited, and they could thus be able to create a wonderful new race. This was, indeed, a very childish idea, and the fruits were not attractive. We who have since learned the law of the alternating inheritance of Mendel are not surprised that

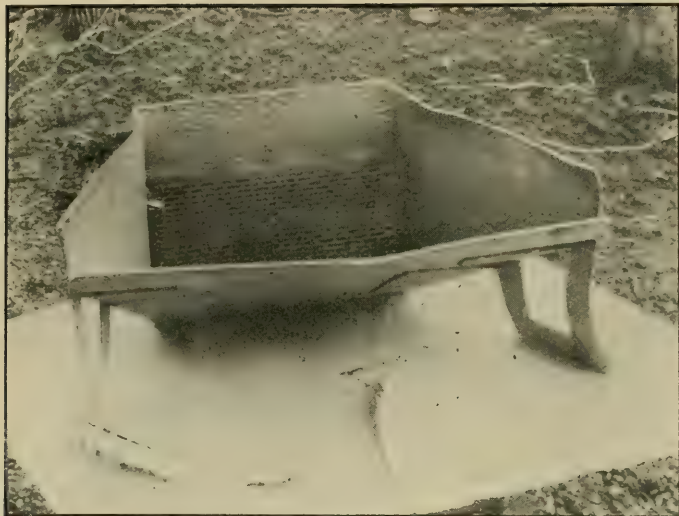


Breeding-case for holding four glass mating-boxes.

the results were so little encouraging. In the following years we learned that the black race was the best for our conditions, and we began to deplore the introduction of the foreign races; but, unfortunately, it was almost too late. The greatest part of the apiaries were mixed, and it was not easy to find some colonies which, in consequence of their isolated situation, had preserved their integrity. The question was, *how to keep pure* those colonies in the midst of all the hybrids. Success was made possible, first, by our glass mating-boxes; and, second, by our mating-stations. The latter are isolated places containing a strong pure colony with a great many drones, and far enough from other apiaries to secure pure mating. The more drones there are, especially young and vigorous ones, the greater the probability of pure mating. But as there were many beekeepers who made use of the station it was absolutely necessary to have a strict control to hinder the entrance of "gipsy" drones with the nuclei. This was made possible by the glass mating-boxes which were introduced, I believe, in 1897. I have been working eleven years



Dr. Bruennich's glass box used as a mating-hive.



Funnel and glass box with excluder.

with the glass boxes, and I know their great advantages.

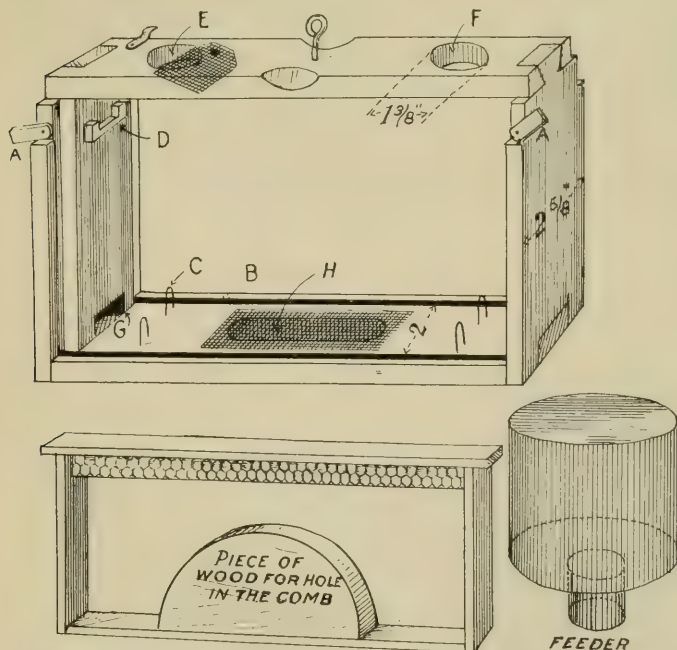
The choice of the stock for breeding must, of course, be a most careful one. I demand from a queen of which I wish descendants that she be at least three years old, her colony during those years being ahead of the

selection has to take place with the colony furnishing the drones, and the old age of the queen is here still more important.

As to the rearing of the queens I think I have nothing new to say. The matter is known well enough. The mature queen-cells are put into an incubator or into little cages

of wire in a strong colony till they come out. In the first, the temperature must be 99 degrees F., and the young queens must have at their disposition honey and water. I generally have the cells in little cages where I introduce from ten to twenty bees. Before making up the nucleus I mark each queen on the back with color. Mark a few drones first before attempting to paint a queen. With the left hand I take the queen by her wings, holding her slightly on the plate of the table, and with the right hand I give her the mark.

The illustration shows my own construction, which I have used many



A, a button for holding the glass; B, a groove for the glass; C, a staple for holding the frame; E, F, holes for feeding; G, entrance; H, hole for ventilation, corresponding to a groove in the front of the breeding-case.



Rendering wax out of bees. See page 498.

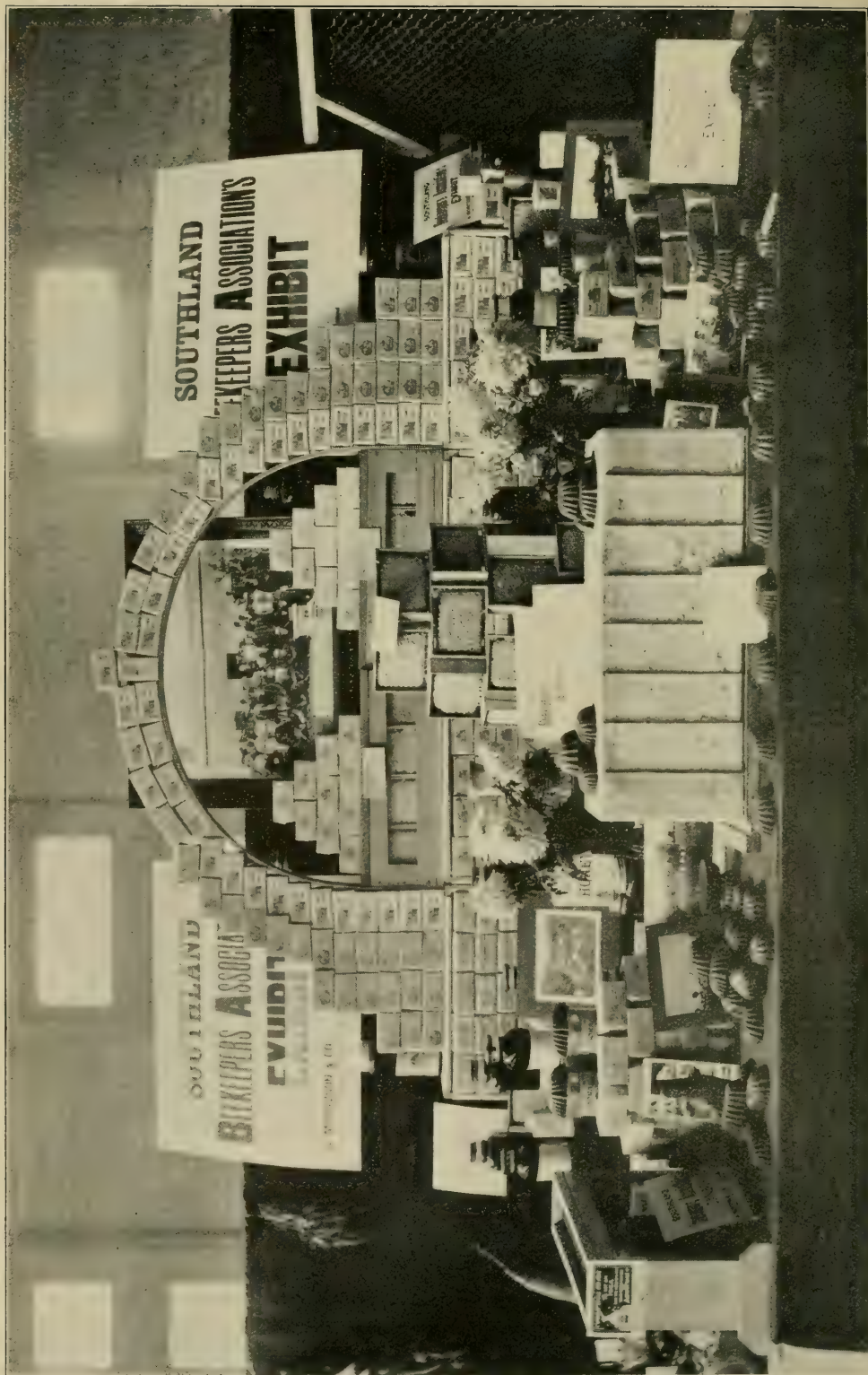
years. An important feature is the distance between the two glasses, which has to be exactly two inches. The size of the comb ought to be at least 60 square inches. The glasses may be capable of easy removal, without disturbing the bees. Four of those glass boxes are placed in a breeding-case. Two or three may be used if desired. A most important thing is to have the entrances as far as possible from each other and quite different in shape and color. On the top of the glass boxes I put a warm cushion.

In the box the frame should be provided with a little strip of foundation, and there should be about a pound of Good candy opposite to the entrance. The candy is made in an easy manner by warming, let us say, 4 lbs. of honey; and, if it is quite liquid, adding 8 lbs. of the finest powdered sugar. This should be well stirred with a wooden stick, and at last poured out on a board where there is a thin layer of sugar.

It is better if the combs for the boxes are prepared in the following manner: In a regular honey-frame put in two or three of the mating-box frames with foundation, and with a piece of wood in each, in order

to get a large opening in the comb, as shown in the illustration. This is very important, because the bees will be far more friendly to the queen, and the latter will have more chances to be promptly fecundated if the bees can form in that free room a little swarm. Give the large frames to a strong colony, and then feed syrup till the box frames are well filled with food.

The glass box being prepared, the next move is to form a droneless nucleus. I remove one of the glasses and set in its place a piece of perforated zinc. On the front I have constructed a kind of funnel into which the bees (without queen) are thrown. The bees must be young and hungry, otherwise they will remain in the funnel and not enter the perforated zinc. When there are bees enough the zinc is removed and the glass replaced. The nucleus is now caged, and the bees left alone some minutes to fill themselves. Then after giving a knock against the box we introduce the queen through the little entrance. If there are many old bees it is sometimes necessary to blow in a mouthful of tobacco smoke. Quite a sure way is to put in the queen before forming the nucleus, placing



A honey exhibit in New Zealand in which the granulated "Pats" are especially featured. See page 500.



A bunch of steers enjoying their first meal of sweet clover hay. See page 500.

her in a little tube of wire closed by candy. Four of the boxes (or two or three) are placed in the breeding-case and brought to the mating-station not earlier than the following day, in order that the bees before flying out may be accustomed to their home and to the queen. After ten days, as a rule, the fertile queen can be removed, which is extremely easy to do, and two or three days later a new queen can be introduced in a candy-cage. The great advantage of these glass boxes is the easy and quick control, without any disturbing of the nucleus. A further gain is the possibility of various observations through the glass.

In the picture I show a simple feeder which is made of a zinc box, the opening being covered with a piece of gauze.

Zug, Switzerland.

MATING-STATIONS

BY J. A. HEBERLE, B. S.

Numerous mating-stations have been started of late in Germany, Austria, and Switzerland. It is the Swiss, with their thorough organization of beekeepers, who, about fifteen years ago, started the mating-stations. Since then, every year the beekeepers who pay special attention to queen-rearing have a meeting—a breeders' conference. For two days the methods of queen-rearing are thoroughly discussed and experiences are exchanged. Lectures and dem-

onstrations make this conference very interesting and instructive.

From the first conference on, they selected with care a few of the best out of a large number of colonies for mating-stations and for queen-rearing. Eggs were sent by mail, so that many could rear queens from a colony that had distinguished itself. Only black bees (natives) were considered; but these had been crossed with Carniolans, and, to a small extent, with Italians, which increased the difficulty of pure breeding considerably. Surely much must be accomplished where so many work systematically with intelligence and patience on one problem.

These breeders were not satisfied with just rearing queens from selected colonies. They wanted these selected queens to be mated with drones from choice colonies. Mating-stations were established. Colonies were selected with special care as to characteristics and qualities to blend harmoniously with the selected queens. Colonies placed at these stations are called "droehne-rich" or drone colonies. The stations are placed in as isolated places as possible. There are reports in bee literature that bees fly as far as five miles. That would imply that within a radius of ten miles no apiary and no wild bees should be found, to be certain of pure mating. Such a distance, however, is not necessary. Three miles I consider sufficient to ensure a high percentage of pure matings. If at all times a large number of drones are flying at the station, good results will be even attained at a dis-

tance of less than three miles from the nearest colonies.

The virgins to be mated are often sent a considerable distance to a station to be mated. No drones must be among the bees that accompany the virgins. Each station is in charge of a beekeeper who receives the virgins, carries them to the station, and, when mated, sends them back to the owner. Usually one or two days in the week are set apart for this, so as not to make too much work for the man in charge. By such careful breeding it can be reasonably expected that the hereditary power is greatly increased, and that a large per cent of the progeny will show the good qualities of the parents.

In 1911 Switzerland had 33 mating-stations; 417 breeders sent 3899 virgins, of which 3296 (84 per cent) were returned as fertile queens to the owners. The most successful station had 95 per cent; the least successful, 66 per cent of the virgins sent returned as fertile queens. In 1912, 41 stations were in operation, and 457 breeders sent 4013 virgins, of which 3162, or 79 per cent of them, were returned fertile. The most successful station returned 94 per cent; the least successful, 58 per cent, as fertile queens. The unusually bad weather in 1912 accounts for the greater loss of queens last year as compared with the losses of 1911.

Queen-rearing years ago was much influenced by American methods, especially that of Mr. Doolittle, but now they have worked out a way of their own that seems satisfactory. Special attention is paid to the colony that has to rear the queens. This colony should be in the same condition as one preparing to swarm. It is claimed that then the larvæ are fed and tended with the utmost care. Dr. U. Kramer, President of the Swiss Beekeepers' Union, is also chief of the queen-rearing division. He wrote an excellent work on queen-rearing for conditions here and where quality only is looked for.

Markt Oberdorf, Bavaria.



This toad has enjoyed many a warm meal from the alighting-boards in my lee-yard. Probably his sour expression is due to the many stings he received. When I photographed him his stomach was full of bees.

Swift River, Mass.

A. E. WILLCUTT.

THE HATCH PRESS FOR WAX-RENDERING

Burlap Sacks Preferred to Square Pieces

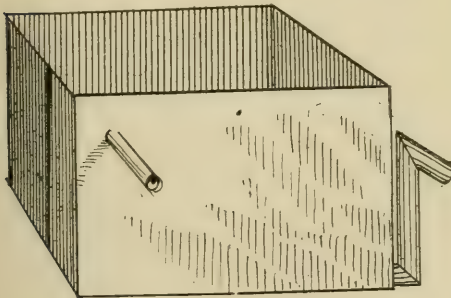
BY WM. BEUCUS

Those who, like myself, have built up from a few colonies to a number sufficient to make a living from bees have, no doubt, passed through all of the trying experiences incident to wax-rendering without suitable appliances. And these heroes and heroines will, perhaps, find it difficult to suppress groans at the recollection of the many utensils which were, one after another, pressed into service in separating wax from even a bushel of old combs. I feel sure that, as remembrance revives all the feelings of irritability attendant upon the actual process of separation and the tedious cleaning-up which necessarily followed, these tried and worthy beekeepers will breathe earnest expressions of assent when I say that, even if the number of colonies kept is only a few, investment in some kind of wax-press is advisable. The disagreeableness of the labor is not the only thing to be considered, however. The loss of temper is serious enough; but the loss of valuable time and the loss of precious bright yellow wax are still more serious. How painful it was to us, after all our pressing and squeezing, to see, here and there, in the slungum, little streams and puddles of beautiful golden wax!

But this is all changed now. We have an outfit which enables us to secure almost

all of the wax without loss of temper, with a much smaller amount of labor, and with a feeling of satisfaction which is pleasant indeed. We have been told, over and over again, in the bee journals, to secure a wash-boiler, or perhaps two or them, in which to melt our combs over a stove, and, with a dipper, to dip up the melted combs and place them in an outspread piece of burlap in the wax-press. To us this seems all wrong. To begin with, the best place in which to work is the good old outdoors, where there is an abundance of room and where we may make as much muss as we please. Next, a wash-boiler is too small, particularly if one has 100 or more colonies. Further, dipping with a dipper is a waste of time; and, last, a square piece of burlap, which we are advised to use in the directions which accompany the Hatch wax-press, is a nuisance.

When we began using our Hatch press we blindly followed directions. The combs were dumped into the tank (4 ft. by 2 by 1), and were transferred with a dipper to the press. The loss of time, with the consequent cooling of the wax which accompanied this dipping, soon disgusted us. We then made a frame of slats; with stones we weighted it down to the bottom of the tank, and placed in each of several gunny sacks two sets of old combs. The mouths of these sacks were tied securely, and they were thrown into the tank. The advantage is obvious. With a stick we could remove one of the sacks from the boiling water and place it in the pan which had been momentarily transferred to the corner of the tank. The steaming mass could then be quickly



placed under the screw, a little hot water quickly added with a pail, and the pressure begun.

Now I must call attention to an additional appliance which I think will prove a boon to my fellow beekeepers. It is the Aiken wax-honey separator used as a wax-water separator. The one we use was made

out of a 60-lb. can. The tube to the right, shown in the drawing, comes from the bottom of the can and extends up to within about $\frac{1}{2}$ inch or a little less of the spout to the front, and carries off the excess of water. This hot water may be emptied back into the tank, thus saving the heat it contains. This separator had been used to separate honey and wax coming from the capping-melter, and for this purpose the little tubes, $\frac{1}{2}$ inch in diameter, were large enough; but for separating wax and water each should be of the same diameter as the spout of the wax-press. The reader will readily see why. If nothing but water is coming from the press it can not escape fast enough, and, as a consequence, the layer of wax rises, flows off, and is followed by water. On the other hand, if nothing but wax is entering the separator, the layer will become too thick, will harden before it can escape, and thus clog the opening.

It is our intention to improve our outfit by uniting the water overflow with the tank, thus saving more heat and the time wasted in emptying by hand.

In order to have the separator work well out of doors it is necessary to have warm weather and to work fast.

Cadott, Wis.

[When we began rendering wax from old combs we used burlap sacks to hold the refuse in the press. On the advice of a number of other beekeepers, however, we tried the square pieces of burlap; and after getting used to them we found that we preferred them, for they do not burst quite as easily as the sacks, and it is not so difficult to shake out the refuse after it has been pressed. Furthermore, a smaller receptacle may be used for melting up the combs if they are merely thrown into the water, and there is less danger of starting the pressing before every particle of comb is thoroughly melted. It is true that it takes a little longer to dip the melted comb into the press; but if a pail is used for a dipper this part of the work takes very little time indeed; and by the new plan that we have recommended for several years, of leaving the plug in the outlet of the press, the hot water and wax do not escape at once but remain in the can, thus preventing the refuse from chilling.]

One advantage of the sacks is that they may be placed under the framework, and then, before the pressing commences, a large amount of wax may be dipped off the top of the water, so that there is much less in the refuse at the time the pressing begins.

We have used the wax and water separators, but we really prefer the simpler out-

fit, consisting of a can perhaps two feet in diameter and three feet high, with a gate or faucet at the bottom, from which hot water may be drawn as it is needed. There is no danger of drawing off the wax, for it is not necessary to lower the level of the contents of the can to the danger-point. In this way the hot water does not run out all the time, but only as needed, and there are no tubes to become filled up with cold wax if one happens to forget.—Ed.]

CUTTING GRANULATED HONEY FOR MARKET

Some Further Results of the Plan as Practiced in New Zealand

BY JAMES ALLAN

[This article, by an oversight, was held over two years before being published. The subject matter is still of interest, however, for we believe there has never been as much interest shown in marketing granulated honey as at the present time. We regard our contributor's plan as being a most practical one.—Ed.]

On page 707, Nov. 15, 1909, appeared an article by me on the "pat" system of preparing extracted honey for the market. The article explains the methods adopted, and also gave the results when the honey was placed on the market. However, no notice of the system has been taken in any subsequent issue of your paper so far as I can see, and I am led to the conclusion that your readers do not recognize any value in it. Perhaps they are right; but it will not do any harm. On the contrary, it may do some good if I give another season's experience along the same line.

In 1910 (a poor season) my honey crop was 5700 lbs. of extracted honey. Of this 5000 lbs. were put up in ½-lb. pats and sent to an agent for sale, and in less than a week I got his sale note to let me know that it had realized 3 shillings per dozen or 6 pence per lb. Now, just a week before sending this agent my honey I was in his store and saw tons of honey in 60-lb. cans, just the same quality as mine, waiting for a buyer to come along and take it at 3¾ pence per lb. Now, what I claim is this: That my honey sold quicker, realized 50 per cent better value, and will reach a satisfied consumer quicker also; all because of the method of putting it up. While the difference in the cost of the packages is very small, at our prices the 60-lb. cans and shipping cases required would have cost me about \$34.00, while the cost of wrapping papers (double wrapping each ½ lb.), and shipping cases, was actually \$46.74. The time required to wrap and fix for market the 5000 lbs. would be about 4½ days for myself and two girls.

They say the dollar is what appeals to an

American heart. I don't know but it should surely make an American look into the business when I say that the result of the pat system was to give me \$200, or, in our money, £40 more for 5000 lbs. of honey than I otherwise would have received.

I enclose with this a photo of an exhibit we sent to a local winter show. In it the pats have a prominent place. The center block is 100 lbs., and shows the tin slides. Each of the divisions, when cut, gives 25 ½-lb. pats. Quite a number of others are adopting this method here, and we think it has a future before it.

Wyndham, Southland, N. Z., June 23, '10.

CATTLE AND HORSES LIKE SWEET CLOVER THE FIRST TIME THEY SEE IT

BY HARRY D. HOWLAND

The engraving shows our steers eating their first feed of sweet-clover hay. It is difficult to see in the picture what they were eating; and as it was thrown in on top of cornstalks, which are light-colored, they show up better than the hay.

During the fall they ran on an oats stubble with red clover in it, and a strip of about one acre of sweet clover. We could not see but that they fed as much on the sweet clover as on the red in proportion to the amount; but as it grew up taller and coarser than the red they did not feed it down as short.

We fed some of the hay to our horses last fall, and thought that they liked it better than timothy. Some of these horses I know had never eaten sweet clover of any kind; for until just recently we have been particular not to let it grow on our farm, as we did not know its value, and considered it a nuisance.

Last spring we mixed sweet and red clover seed together, and sowed a narrow strip of the oat-field with it. On the lower ground the sweet clover made a luxuriant growth after the oats were cut; but the red clover didn't make as much growth as where there was no sweet clover with it. On the high ground in this strip the sweet clover made a growth of only a few inches, while the red grew a little taller. Upon testing the soil we found that there was very little or no acid in the low ground, while the high ground showed much acidity. From this experience we conclude that sweet clover requires more lime in the soil than red clover. We are covering a 30-acre field with two tons of ground limestone per acre on which we will sow an early variety of oats and sweet clover this spring.

Gardner, Ill., Feb. 22.

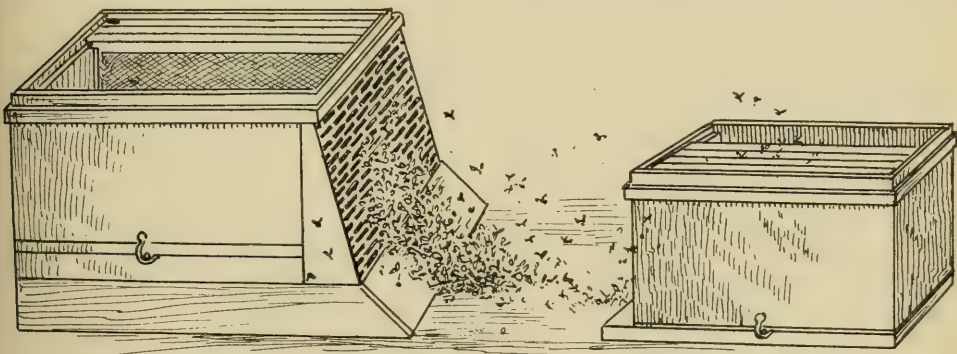
SIFTING TO FIND THE QUEEN

A Quicker and More Convenient Method

BY G. C. GREINER

Since Mr. Keep wishes to know a little more about finding the queen by the sifting process, page 703, Nov. 1, 1912, I will give some data from my 1911 foul-brood campaign, from which Mr. K. may draw his own conclusions. But by way of preface I will say that the beekeeper with some experience, who keeps Italian bees and uses loose-hanging frames, very seldom if ever needs to resort to any queen-finding device. The reader may wonder what a loose-hanging frame has to do with finding the queen. A great deal, as I will explain later on.

The device described by Mr. B. Keep, on the above-mentioned page, may give the desired result with the Hoffman or any other self-spaced frame; but it will not work so well with the loose-hanging frame. One serious objection to his *modus operandi* makes itself apparent at first sight.



His combs have to be shaken and brushed clear from bees (and queen) inside of the hive or on top of the frames, and this is one very unpleasant feature of Mr. K.'s plan, as all beekeepers who have had any experience in this particular work can testify. If it is done in the hive, bees are liable to be jammed or the queen injured; or if done on top of the frames, bees may fly over the edge of the hive, and who knows that the queen is not among them? Then the transferring of combs from the upper to the lower hive is not any too handy, although it can be done, if there is no alternative; but there is a better and quicker way.

I would now call Mr. K.'s attention to the accompanying drawing. It is just such a scene as I have caused and witnessed repeatedly during my foul-brood operations. This device, which I call "Greiner's queen-sieve" because the particular way of its

application originated with the writer, is simply a square piece of excluding zinc of proper size, with a little wing made of $\frac{1}{2}$ -inch lumber, on each side, to fit against the hive, and about half way down the stand. A little screw or nail on each lower corner, partly driven in, keeps it in place. It can be adjusted or detached in less than a minute. Its essential points are, first, large size to keep from clogging up; second, slanting position to assist bees in getting solid foothold; third, the hive with the attached sieve should be placed on the old accustomed stand, that the homecoming bees and those that take wing when the combs are being shaken may readily find their home.

When the queen is wanted, her hive is moved in front of the old stand, and the empty one set in its place. We then remove the outside comb on the opposite side; and with a shake or two and a brush or two all bees, even to the last one, are dropped close to the alighting-board of the old stand, after which the comb is placed also

on the opposite side of the empty hive. The same operation is repeated with all the combs; and when the old hive is stripped of its contents the new one has the combs in the same rotation they were before. In the mean time bees have begun to travel toward their accustomed home, and, in company with home-coming bees, are sifting through the excluder, where, sooner or later, the queen may be found.

Comparing this operation with Mr. K.'s plan I venture to say that it can be done in half the time. There is nothing to hinder the free handling of combs; shaking and brushing can be done in a hurry, transferring combs from one place to the other is the handiest imaginable, and the finding of the queen in open daylight much easier than to look for one in a bee-covered hive.

But there is another point that tallies on my side. While Mr. K. has to shake, brush,

and transfer every comb in the hive before he can begin to look for the queen, by my method I seldom have to go to that trouble. If the operator will keep his eyes on the bees on the ground, the chances are three out of four that he will see the queen drop when shaking off one or the other of the combs, frequently one of the middle ones. This accomplishes the object. He can pick her up, cage her, or dispose of her as circumstances may dictate. The rest of the combs, of course, need not be shaken off—simply transferred with the adhering bees from one hive to the other. It is needless to say that the excluder is removed as soon as the queen is found. Any bees remaining in the empty hive may be dumped with the rest in front of the old stand.

As I said before, the beekeeper with some experience hardly ever needs to resort to the use of the queen-sieve. Of the 45 or 46 diseased colonies, all blacks, from which I had to take the queens, about 40 I had caught and caged at different times, before I ever attempted any shaking-off operations without the use of the queen-sieve. The other five or six baffled my skill. In spite of repeated attempts I was unable to find them; and as a last resort the accompanying scene describes my final success.

Another instance where my method proved successful was away from home. Our bee-inspector had found at a neighboring amateur beekeeper's yard four diseased colonies, and had instructed the owner that he must either introduce Italian queens or annihilate his bees. In his consternation this beekeeper came to me, saying, "Mr. Greiner, I can send for the queens, and possibly introduce them; but I can not take out the old queens. Could you not spare the time to perform that little operation for me?" Then he added, "You know I use the Hoffman frame in my hives, and it is such a terrible job to manipulate them. I actually can not do it."

What could I do but promise?

A few days later, taking out (or, better, trying to take out) those four queens formed part of my day's program. I had no queen-sieve to fit his hives; but as I had been reasonably successful with my own bees I trusted to luck and proceeded without that commodity. The first hive I opened was comparatively new. Follower and frames were easily taken out, and I was fortunate enough to find the queen on one of the first combs. But not so with the other three. They were so stuck up and glued together that it seemed next to impossible to dissect them. When I finally did gain access to the combs the continued prying and jarring had aroused the bees

to such a state of nervousness that finding a queen was all out of the question. I left them that day.

The next day found me again at the same place; but this time my operating outfit included a properly constructed queen-sieve of the Greiner pattern. Although I opened the hives with the utmost care, and handled the combs with practically no jarring, I could not find the queen of any of the three hives. Necessity compelled me to use the sifter, which did the business to perfection. I picked one from the ground. The other I took from the excluder just after she had passed on to it, and the third one I never found. But as that colony accepted their new queen without any trouble she was probably killed or lost during the operation.

It will be noticed that the manipulation as described above reverses the position of the combs—that is, the fronts become backs, and the backs fronts. I have never noticed any detrimental result from the change; but if the operator feels anxious to retain their original position, the old hive, when removed, should not be changed end for end. The object of facing the hive toward the old stand is to assist the emerging bees, and there are always more or less investigating the disturbance in finding the old location.

La Salle, N. Y.

Beekeeping Talks at the New York State College of Agriculture at Cornell

Six years ago the New York State College of Agriculture at Cornell instituted what is known as "Farmer's Week." The number of visitors is yearly increasing, over 2500 having registered last year. The college realizes that beekeeping is a fascinating subject to many people, and that bees are of vital importance to the farmer and fruit-grower. Therefore the management last year looked about for a capable man to present the subject of scientific beekeeping to the farmers who gather here for Farmer's Week. They were fortunate enough to secure Mr. S. D. House, of Camillus, N. Y., who is known by the readers of GLEANINGS to have a most enviable reputation as a producer of fancy comb honey. He gave several lectures on hives, manipulation, and the diseases of bees.

It was my good fortune to be able to attend a part of these meetings, and I assure you they were far from dull. Mr. House is an interesting speaker, and has the power of imparting to his audience something of the enthusiasm which is manifest in his every word and action.

Ithaca, N. Y.

WENDELL T. CARD.

How to Get the Greatest Yield of Honey from Sweet Clover

Just before sweet clover blooms, mow all on your own farm for hay and let the bees forage on your neighbors. Then when your neighbors' clover has gone to seed, yours will have grown up again and will yield nectar until freezing weather comes.

Canon City, Col.

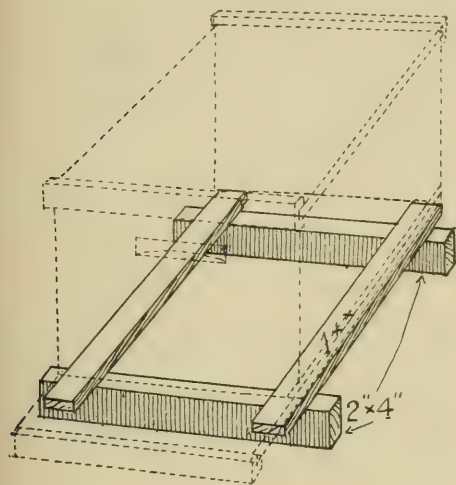
W. G. WRIGHT.

Heads of Grain from Different Fields

Another Hive-stand Suggestion

"Of the making of hive-stands there is no end." The quotation is not strictly correct, but it suits the case. And yet, after all, there is a want of hive-stands, judging by the makeshifts so commonly to be seen. As bees take to hollow trees, wall spaces in badly kept buildings, and any place regardless of appearance, the opinion seems to be general that any old thing is good enough for bees. The bee-keeper betrays his careless methods by the appearance of his hives and their supports. The conditions are often distressing to see. All will agree that convenience in handling and easy access to all sides of the hive are prime requirements for a good hive-stand.

Cheapness should come next. Having cheapness easily within reach, permanence is not so important. Then the simpler the construction and the cheaper, and the less material used, the nearer one comes to an ideal stand, having regard for efficiency.



The stand which I use and will now describe is the result of circumstances. Having a lot of odds and ends of 2 x 4's from repairing grape-arbors and trellis work, it occurred to me to use some for a temporary hive-stand which was needed on short notice. The thing answered the purpose so well, it is so simple, and so easily made from material which otherwise would be wasted, and is so durable that I have since used no other.

Cut two pieces of 2 x 4 or 3 x 4, each 20 inches long; also cut two pieces of 1 x 2, or any width available, each also 20 inches long. Lay the 2 x 4's on the bench or floor, on edge, 16 in. apart, outside to outside. Crosswise upon these lay the inch strips, also 16 in. outside to outside. Tack at each bearing with a three-inch wire nail; then make every thing square, and drive the first nails home, putting an additional nail in each bearing.

The hive is set parallel with the inch strips so that the foot can be placed partly under the hive when lifting the hive-body or supers. This stand raises the bottom-board 5 inches from the ground, which meets all conditions in this part of Jersey, where the soil is not particularly sandy nor wet. The 2 x 4 pieces may be soaked in creosote oil some time before being put under the hive. This will help to preserve the wood, and will repel ants for some time.

Bergen Co., N. J.

B. KEEP.

Finding Black or Dark Colored Queens

As I bought a lot of bees last June, mostly hybrids, I usually have poor luck in finding black queens. I ordered two dozen Italian queens to be delivered by September 1, but didn't get them until a week or ten days later. By that time the lower body or hive was well filled with honey, and I always have my colonies strong in bees. The weather then was extremely warm, and some queens were dead on their arrival. Some more died the next day, and I had them in the most suitable place I could find. Wherever the bees looked bad and lifeless I took them all out, and in their place I put young bees only. It takes me from one to three hours, as a rule, to find black queens, but not so with the Italians. I can find them on an average in from thirty minutes to an hour, usually in less time—that is, when the hives are crowded with bees.

So I figured out a plan whereby I could find them more quickly. I had to get them introduced, because it was getting so late the weather might turn cold or rainy, any time. Robbing had started too. I use a cage, but prefer working in the open.

I moved the hive into which I was going to introduce the Italian queen, to one side. In its place I set an empty hive-body with two old combs or good ones. It is a good plan to use dry combs, for the bees will not stay on them so much.

I shook all the bees in front of the empty hive, then put on an excluder, and on top of that I set the super with the combs, all except one from which the bees had been shaken. I use the cages for introducing that press into the comb. With one comb out I had room enough to put in my cage with queen. In about two days I took off the upper super. It has been my experience since that I nearly always find my dark queens. With but few bees below, the queen is easily found or else is missing. By that time the introduced queen is nearly always gnawed out, or, when released, would be accepted. I have never had a particle of trouble, and have never lost a queen by this method. Besides, it is easy, and is a much quicker method of introducing queens of the dark strain of bees.

Lake City, Minn.

EDWIN A. KRINKE.

The Control of After-swarms; First Cell Likely to Hatch on the Ninth Day from the Time the Prime Swarm Issues

On page 387, June 1, A. B. Anthony says, "We have by the 'wing-clipping method' a decided aid in the handling of primary swarms; but it is the after-swarms that not only can and do make us climb, but that sometimes beat us completely; and it would not hurt a bit if one more slat could be added to the knowledge our older veterans have given us on the handling of this problem."

I do not know that I shall be able to add the "slat" desired, but will give my method of controlling after-swarms, whether I practice the "wing-clipping method" or make increase by a modified Alexander method. In addition to my book-record I keep a record on a thin piece of board of the number, the date of casting the swarm, and when the queen is due to hatch. I count to the ninth day after the swarm issues as the day the cells are due to hatch. That is, the forenoon of the ninth day after the first swarm in an apiary issues, a young queen is quite likely to be hatched. But after the first one, the swarms may issue before the first queen-cell is capped, and so it may be a day or two or even more before a queen is hatched. My method is to look into the hive the forenoon or early in the afternoon of the ninth day; and if I find a queen-cell from which a queen has hatched I find the queen and then endeavor to cut out all remaining queen-cells, and finally put on a super of sections. Some-

times the cap on a queen-cell will close back so that it will require close observing to notice that a queen has hatched.

If, in examining a hive on the ninth day, I do not find that a queen is hatched, I place an empty hive by the side of the one examined, and put therein all the combs containing queen-cells except a frame containing but one cell. If I find a frame with but one good ripe cell I use it; but if I do not so find I remove all the cells but one good one from a frame and put this frame and all others that do not contain queen-cells back into the hive and put a follower board up against the frames. I make sure there is but one cell in the hive, as it may after-swarm, for many bees will leave the hive beside and return to this one. So far it has made no difference how many cells are in the hive at the side; there has been no after-swarming. In a day or two, or three, look; and if a queen has hatched in the hive at the side, cut out all the remaining cells and put all the frames back into the first hive and put on sections.

If it is desired to form a nucleus from some good colony, or if a queen from some good colony is wanted for any purpose, here is an opportunity. If it is desired to save a queen or so from some good colony the separation had better be made a day sooner, as the first queen may hatch and destroy all remaining cells. While cutting out queen-cells, sometimes one or more queens will hatch; and if they are from good stock cage them and take to some of poorer stock; or if there are none such, to some others that are due to hatch or will be in a day or so; and first gently puff in at the entrance a little smoke and then let the queen go in and then puff in a little more smoke. By this method newly hatched queens are quite likely to be accepted. Then in half an hour or so, or when convenient, look into these hives and find the queen; and if she has been accepted, cut out all cells and put on sections.

If the weather has been unfavorable for swarming for a day or so, and then swarms issue, it might be well to examine on the eighth day, or even earlier. In the management of bees there are so many things modified by conditions that such conditions should always be considered. Do not think that I always succeed in finding all queen-cells, for sometimes some are missed, and so an after-swarm sometimes issues. When such occurs I take my small light hiving-box on a light pole, and, often standing on the ground, or sometimes on a light ladder arranged as an easel, I reach the box up against the cluster and jar them from the limb; and when they enter the box I carry them to the hive from which they came and lay the box in front until I cut out the overlooked cell, and then pour and shake the bees from the box and they enter the hive. By this method I seldom have to do any climbing; and if I do, it is but little, as with my light hiving-box and light pole I can reach quite a distance. This method for me is quite satisfactory.

Huntington, Ind.

J. W. SOUTHWOOD.

Sending Bees in Car Lots; Importance of Water

I sold a car of bees to D. B. Husperger and Chas. D. Case at Ordway, Colo., and will send you their letters, and should like to have your comment on them and the shipment, and state how well or ill we succeeded.

Fisher, Ark., June 18.

S. J. ALEXANDER.

[We judge that you were fairly successful, but infer there was considerable loss of dead bees and unsealed larvae and eggs on the way. This last loss could have been avoided if you had used water to spray the bees on the way. In GLEANINGS for June 15, 1912, page 371, you will find an article on our experience in shipping bees. You will note that we emphasize the importance of using plenty of water and spraying the bees as often as may be required. We also took the precaution to have wire cloth at top and bottom. A colony of bees or nucleus must not have too many bees in it to go through well.

Therefore, our colonies are somewhat light when they are shipped from the South to the North. A strong colony will not go any great distance in a car that way without considerable loss en route. If you ship any more bees, take the precaution to have wire cloth at top and bottom, and a barrel of water in the car, with a proper spraying-outfit, so that you can wet down the colonies along the journey, or as often as the bees require it, and they will need it, if the weather is warm, several times a day.—ED.]

How to Introduce Virgin Queens; Best Age for Introducing

Would it be all right to introduce virgin queens to colonies of black bees right from the nursery cage without having nuclei?

Grant, Ont., June 24. JOHN MACDOUGALL, JR.

[It will be all right to introduce a virgin queen to colonies of black bees right from the nursery cages. But such virgins must not be more than a day old, and it would be very much better if they were not more than two or three hours old. A virgin queen that is three, four, five, or six days old is pretty sure to be attacked by the bees and killed. It is also advisable to let the virgins run in at the entrance; and be careful that you don't handle them with your fingers, otherwise the odor acquired from your own person is liable to be communicated to the queen, with the result that the bees will attack her. Queens should be released and allowed to run into the hives as quietly as possible.

Be sure that the black colony is absolutely queenless, and that there are no cells in the hive. The surest way is to make the black colony queenless, and then from twelve to twenty-four hours afterward let a virgin queen run in at the entrance, being careful not to cause any disturbance.—ED.]

Putting Bees in Twin Mating Nuclei

I am anxious to get my twin boxes into operation and would like to know whether in your experience it is possible simply to take the boxes and put in a good dipper of bees along with a young virgin just hatched, omitting the move of getting little frames filled with brood in larger hives first. You understand they are, of course, all nicely drawn out from last season's work.

H. HARLEY SELWYN.

Kirk's Ferry, Quebec, Ca., June 13.

[The plan of filling the baby nuclei by means of a little dipper on combs adapted to those boxes is perfectly feasible, and the one that we regularly employ. Originally, it was our idea to put these little frames into the larger Langstroth frame—three of them to a frame—get them filled with brood and honey, then take them out and put them in the baby nuclei; but we find that is not necessary. We cut combs out from old standard-size combs, slip them into the baby frames, insert the frames in the hive, and then dump in about a third of a pound of bees. If the combs contain no honey, of course the bees will require to be fed.

You will find this method described in our A B C and X Y Z of Bee Culture in the edition for 1910 and again in the edition for 1913. You will also find it in GLEANINGS, Nov. 1, 1909.—ED.]

Stopping a Case of Robbing After it is Once Started

I have found a sure remedy for prevention of robbing. Remove the bee-escape from an escape-board, and put a piece of excluding zinc over the hole. Place the colony that is being robbed on top of the escape-board, and a hive with a set of empty combs beneath. Leave the colony on the old stand. If the bees have a queen and are in normal condition I have never known this plan to fail. The robbers don't seem to dare to go through the zinc.

Brush, Colo., Feb. 7.

DANIEL DANIELSON.

Our Homes

A. I. ROOT

"Thy kingdom come; thy will be done on earth as it is done in heaven."

Our readers will recall that I have for some time past been declaring that some great "world-wide" event is just before us. We have wireless telegraphy, flying-machines, telephones, and progress and improvement everywhere; but of course the progress is not *always* on the side of righteousness; but we have God's promise that his "kingdom" shall ultimately prevail. When I asked the question, "What is coming next?" a good brother away off in California said *he* could tell me what the great thing was to be very soon on the world's program. He said *Jesus Christ* is coming back to earth; and I think he was right about it, and I think our business is to be on hand and on the alert and ready for "his coming."

With the above in mind you may understand how greedily I drank in the sermon I am giving below. Of course I sat close to our good pastor, as I am obliged to do with any speaker on account of my deafness; and I said "amen!" to his different points so many times that I was ashamed to say it any more; but some of the audience afterward expressed a wonder that I did not keep on with my amens.

Now, if any of you good people feel inclined to shout amen as you go over the sermon below, just put your amen on a postal card (or any thing else you like), and direct it to your old friend A. I. Root.

THE MOVEMENT IN THE MULBERRY TREES.

BY REV. H. SAMUEL FRITSCH, D. D.

And let it be, when thou hearest the sound of a going in the tops of the mulberry trees, that thou shalt bestir thyself; for then shall the Lord go out before thee, to smite the host of the Philistines.—II. SAM. 5:24.

Saul, the ill-fated king of Israel, was dead. David, by divine favor and native ability, had assumed the dead monarch's idle scepter and ascended his vacant throne. All Israel was jubilant, except for one thing—the Philistines, the uncircumcised Philistines!

When the Philistines heard that they had anointed David king over Israel, they all came up to seek David. For reasons of his own, David was not very anxious to see the Philistines, so he went down to his stronghold, leaving orders to say when they called, "Sorry, but not at home!" But the Philistines were not to be put off as easily as all that. They had an intense desire to see this David, so they prepared to sit down and wait for him. They gathered their

forces together in the valley near by, ready for battle.

In this predicament David enquired of the Lord, "Shall I go up against the Philistines? Wilt thou deliver them into mine hand?" and the oracle gave him this assuring reply, "Go up: for I will certainly deliver the Philistines into thine hand." And David went up, and smote the Philistines.

But these Philistines, though uncircumcised, were nevertheless brave men. They rallied their scattered forces, came back, and again pitched their tents in battle array.

Again, therefore, David enquired of the Lord: "Shall I go up against the Philistines? Wilt thou deliver them again into mine hand?" But this time the answer of the oracle was, "Thou shalt not go up; but circle over to that grove of mulberry trees yonder, and let it be, when thou hearest the sound of a going in the tops of the mulberry trees, that then thou shalt bestir thyself; for then shall the Lord go out before thee, to smite the host of the Philistines."

Accordingly, David camps his men in the mulberry grove. He waits, breathlessly watching the tops of the trees. Not a branch waves, not a twig shakes, not a leaf trembles, not a sound, not a sign! And yonder is the army of the Philistines, every minute adding greater numbers, every hour becoming more formidable!

It must have been nerve-racking and discouraging for David and his men thus to wait in the strange stillness while every moment the enemy became more powerful and insolent. Sometimes earnest Christians to-day become impatient and disheartened because great evils flourish in the land like the green bay tree, while all around there seems to be a stupefying moral and religious lethargy and apathy which cares not and does nothing! How long, O Lord, how long? How long must we tamely sit by and submit to the insolence of the liquor traffic, the burning shame of the white-slave trade, the stigma of ecclesiastical controversy and competition, the cry of industrial oppression, the stench of political corruption, the wicked waste of war? Will the kingdom never come?

It is my purpose in this sermon to call your attention to certain movements in the tops of the mulberry trees of our land and time which seem to me to be prophetic. The kingdom *is coming!* The Philistines are soon to be routed and smitten hip and thigh! I know it! I know it! I know it

by the rustle in the tops of the mulberry trees!

1. There is a rustle which sounds very much like the coming of a great *moral movement*. Take the temperance movement as an example. It is not so very long ago that to alcoholic beverages there was universally ascribed a practical food value. The German nation, for instance, has been pointing with pride at her stalwart and brainy sons, saying, "Beer!" But now the emperor dares to intimate that the stalwartness and intellectuality of the sons of the Fatherland exist, not *because* of beer but in *spite* of beer, and he warns the young men of the nation that alcohol will rob their brains of their clearness, their nerves of their steadiness, and their muscles of their vitality, and urges the members of the army and navy to join total-abstinence societies.

Until very recently wine was considered an absolute necessity at high social functions. True, for some time it has been allowed good form for a guest to refuse wine at a banquet if his host provided it; but it has not been considered permissible for a host to refuse to set up the wine if he knew his guests expected it. But now comes Secretary of State Bryan and blandly pours the grape juice, and establishes recognition for that which had not been accorded recognition before—the conscience of the host. And the significant fact is that the people of the country are applauding our new grape-juice diplomacy!

Until very recently it was believed that a man to be popular enough to be elected to high office must be a hail fellow well met, a jolly good soul who would clink the glass and drink the lager. But now things have come to such a pass that an ex-president of the United States considers it worth while to refute in libel court the charge that he drinks to excess. We rejoice in Col. Roosevelt's vindication; but of even greater consequence than the personal vindication of a prominent public character is the significance of the recent libel suit as a reflection of the public conscience and an indication of what the people now expect of their political leaders. There was a time when the rumor that a man was a drinker would have worked to his political advantage rather than damage. But the fact that such a prominent political figure as Roosevelt considered it necessary to refute the charge that he drank to excess shows to what an extent the liquor has been squeezed out of politics. It means that henceforth no man will dare to run for high office who has the slightest taint of whisky on his breath.

For many years the national prohibition of the liquor traffic has been regarded as a

consummation devoutly to be wished, but altogether too improbable and impracticable and remote a proposition to be given serious consideration. But just a few days ago there came in my mail a circular from the Anti-saloon League entitled "The Next and Final Step," the purport of which is expressed in this sentence: "We believe the time is fully ripe for the launching of a campaign for national prohibition—not by any party or parties, but by the people." The circular supports its proposition by calling attention to four facts: 1. The people are on to the real character of the traffic. "It no longer has advocates; it must depend for its existence upon partisans." 2. The nation is aroused as to the grave peril we face. "The saloon stands for the worst in political life." 3. What has already been accomplished is prophetic of what can be accomplished. 4. The opportune time is here. To quote from the circular:

"The time for a nation-wide movement to outlaw the drink traffic is auspicious. Organization is now established and in operation in all parts of the country. The forces that definitely oppose the traffic are in accord as at no time in the past. The moral, scientific, and commercial aspects of the problem are being more intelligently put before the public than hitherto. The narrow, acrimonious, and emotional appeal is giving way to a rational, determined conviction that the traffic being the source of so much evil and economic waste and the enemy of so much good has no rightful place in our modern civilization."

But I am not preaching a temperance sermon this morning. I have simply used the present status of the temperance movement to illustrate that there is something stirring in the tops of the mulberry trees which is indicative of an immediate moral reform. The same change that I have indicated in the matter of temperance may be noted in every phase of the moral problem. Cities are appointing vice commissions to study how to abolish the shame of the social vice. The government is appointing investigating committees to look into graft, corruption, bribery, and lobbying. Chambers of Commerce and Boards of Trade are studying how to cure strikes, riots, boycotts, industrial and economic oppression. Is the kingdom coming? Of course it is coming! You can tell it by the moral movements in the tops of the mulberry trees!

2. There is a rustle in the tops of the mulberry trees which sounds very much like the coming of a great *ecclesiastical movement*.

The curse of Protestantism is denominationalism; but it is only within very recent years that we have begun to recognize it as a curse. There are many things about Catholicism that you and I do not like; but

let it be said to the eternal praise of the Roman Catholic half of Christendom that it stuck together; and it must be said to the eternal shame of the Protestant half that it has divided and subdivided until it has resulted in the very pulverization of the body of Christ. The United States Census recognizes over 150 denominations, among whom there are 14 different kinds of Baptists, 17 different styles of Lutherans, and 17 different brands of Methodists! Verily, denominationalism has run riot and wrought havoc!

In the history of denominationalism we may trace six distinct stages.

First, separation. Whenever a man got a new theological idea or a unique religious experience, he felt called upon to start a new denomination. It never seemed to occur to the leaders in those days that the thing to do was to stay in the mother church and bring the new idea to the church and the unique experience to its members. The whole trend was separation.

The second stage was condemnation. Each denomination said, "I am absolutely right, all the rest are unconditionally wrong." The churches actually "hated one another for the love of God." Christendom was divided into "Christian" and "Heretics," and no one was counted a good "Christian" who had not slain his "Heretic." The usual denominational consciousness expressed itself thus: "The members of my denomination are Christians, all other denominations are heretics."

The third stage was competition. Churches stood on opposite sides of the street competing in unholy rivalry for the converts of the community. This stage was aptly illustrated some summers ago in the city of Lincoln, Neb., when the congregation of the Presbyterian church sang, "Will there be any stars, any stars in my crown?" while at the same moment the Methodist church across the street was singing, "No, not one, no, not one!"

The next stage was toleration. The churches did not quarrel, but they let each other strictly alone. "You in your small corner, and I in mine"—but don't you dare get near my corner!

The next stage, in which we find ourselves at the present time, is federation. The churches are working together for the common good, shouldering together the burdens of common problems. This is not only true in communities locally, but even more so in the country at large. The Federal Council of the Churches of Christ in America includes 32 Protestant denominations, and represents a church membership of no less than 20,000,000.

What is the next step? Combination. Are there any rustlings in the tops of the ecclesiastical mulberry trees showing that combination is a near possibility and probability? There certainly are! In every great religious gathering they are discussing church union. The Episcopal church—mind you, not the Congregational church, but the Episcopal church—is making serious arrangements for a world conference on faith and order, looking toward a union of all Protestant bodies. At the general convention of the Protestant Episcopal Church in the United States of America in 1910, the following resolution was adopted:

"Whereas, There is to-day among all Christian people a growing desire for the fulfilment of our Lord's prayer that all his disciples may be one; that the world may believe that God has sent him:

Resolved, That a joint commission be appointed to bring about a conference for the consideration of questions touching faith and order, and that all Christian communions throughout the world which confess our Lord Jesus Christ as God and Savior be asked to unite with us in arranging for and conducting such a conference. The commission shall consist of seven bishops, appointed by the chairman of the House of Bishops, and seven presbyters and seven laymen, appointed by the president of the House of Deputies, and shall have power to add to this number and to fill any vacancies occurring before the next general convention."

With the Episcopalians taking the lead in such a world conference, who will dare to say that there is not a movement in the mulberry trees which betokens the coming of actual church union?

3. There is another rustle in the tops of the world's mulberry trees which sounds very much like the coming of a *universal peace movement*.

It is not so very long ago that war was regarded as a permanent and prominent factor in civilization, when the war-business was deemed the only really heroic calling, and the war-path the only path that leads to fame.

It is only a few years ago that the great German militarist, Von Moltke, wrote: "A perpetual peace is a dream, and not even a beautiful dream. War is one of the elements of order in the world established by God. The noblest virtues of man are developed therein. Without war the world would degenerate and disappear in a morass of materialism."

It is only a few years ago that another officer of the German army argued: "Deer and antelope thrive best where there are lions and tigers to kill them; civilization gets forward fastest on a powder-cart, and enduring world-wide peace would mean degeneracy and be a misfortune for the human race."

It is only a few years ago that the public mind and conscience quite generally ac-

quiesced in such sentiments as these. But the last few years have seen a decided and significant change in the public conscience regarding war.

There is less talk about the glory of war, and more recognition of the brutality of war. What glory is there in human beings created in the image of God killing each other?

There is less talk about the benefits of war, and a more serious consideration of the cost of war. The nations of Europe in time of peace have each year a war expense of \$2,000,000,000—in time of *peace*—think what the expense would be in time of actual war! Men are beginning to calculate the untold good that could be done to humanity if all this money were spent for bettering the condition of the people.

There is less talk about war as the last resort of disputing nations, and in its place there has grown up a vocabulary with such terms as "The Hague Tribunal," "The Interparliamentary Union," "The International Court of Arbitral Justice," "The Supreme Court of the World," "The World Peace Foundation," "The American Association for International Conciliation."

Yes, there is a war-movement in the tops of the mulberry trees, only it is blowing in the opposite direction from what it did in David's day. Then it blew toward war, now it blows away from war.

There are other movements besides the three that I have mentioned, more comprehensive, perhaps, such as the social movement; but these three are typical of those general tendencies of the day which show to the discerning mind that God is answering the age-old prayer of his people, "Thy kingdom come."

"And let it be, when thou hearest the sound of a going in the tops of the mulberry trees, that thou shalt bestir thyself." "We are living, we are dwelling in a grand and awful time!" The kingdom is coming! You can tell it by the moral, ecclesiastical, national, and social movements in the tops of the mulberry trees! Movements to banish evils from the land! Movements to bring together the divided parts of Christendom! Movements to bring the blessing of world peace! Movements to make the kingdom come!

God grant that this morning as we list to the sound of the going in the tops of the mulberry trees we may take new heart and new courage, knowing that God is still working his wonders to perform, and, above all, may it be that, when we hear the strange rustling, we will all bestir ourselves!

SHALL WE OBSERVE SATURDAY OR SUNDAY?

I have been a subscriber of your bee journal for nearly a year, and have read nearly all your Bible texts. I do like to read them, and I agree with you on the most of your writing except on the fourth commandment. You say the first day is the sabbath, and the Bible tells us that the seventh day is the sabbath. The fourth commandment tells us that we should remember the sabbath day. "Six days shalt thou labor, and do all thy work; but the seventh day is the sabbath of the Lord thy God. In it thou shalt not do any work." And it tells us that the Lord blessed the sabbath day and hallowed it. Can you say any thing like that about the first day of the week, or the man-made Sunday?

Dear River, Minn., Nov. 8. H. A. GRUND.

Our older readers will remember that for forty years past I have, every little while, stopped to consider the matter which is again brought up in the above letter; and may God give me grace and wisdom while I try to explain to this good brother and a lot of other near and dear friends why it seems to me no good can be accomplished by changing our present Sunday to Saturday. I think I am pretty well posted in the matter, for my brother's wife, where she lived, was an earnest advocate of having Sunday on Saturday.

First and foremost, when it is Sunday here, on the opposite side of the world (or in opposite parts of the world) it is some other day of the week; and there are islands in the sea where the question has never been settled as to what day of the week it is. This dividing line is 180 degrees east of London, or through the islands near New Zealand; and it is literally true that next-door neighbors have Saturday on one side of the yard and the other one has Sunday at the same instant. What the day of the week is can not be settled. If you go around the world by traveling east, some other day will be Sunday than if you went around the world by going west. I think you will get my idea. Well, in view of the fact that the days of the week are whatever the people happen to decide on, what sense or science is there in thinking the world would be made better by having every thing as now established out of joint by the change proposed? I have submitted the matter in this way perhaps a dozen times since GLEANINGS was started, and no advocate of this change, so far, has ever been able to refute it. It is true one good brother did say something like this: "Mr. Root, if you and I were traveling we would both be able to decide which day was Saturday and which was Sunday." To this I agreed; but we would have to be guided even then by the customs of the people wherever we happened to stop.

I have sometimes made the suggestion to these good friends that, instead of undertaking any such change as they propose,

we should simply agree to call *Monday* the first day of the week; and it is in reality the first working day. Then every thing would be lovely. But the friend to whom I proposed this solution of the difficulty simply replied, "Because the Seventh-day people will not have it so." We are having a hard time, God knows, to preserve the sanctity of the generally accepted Christian sabbath. In view of this, is it not a little sad, to put it mildly, to think so many good people should try to weaken our forces for righteousness by something so comparatively unimportant? Just now, in this day and age of the world, good people are dropping minor differences in order that we may work together to bring about the glad time when God's kingdom shall come and his will be done on earth as it is done in heaven. United, we stand; divided, we fall.

So far as I can see, and I have examined the passages from the Bible carefully that have been pointed out to me, the Bible nowhere attempts to fix the day of the week. In fact, it could not do so. It does plainly command, however, that one day in seven shall be remembered and kept holy, leaving the people to decide for themselves what day shall be called the first day, and what day shall be generally recognized as the seventh.

REMEMBER THE SABBATH DAY, ETC.

Mr. Root.—For more than thirty years I have been interested in your writings on home topics and the moral questions of the day, and was well pleased with what you say about the sabbath in *GLEANS* for Jan. 15. I think we need to emphasize the duty of Christians to prepare for the sabbath by doing on Saturday what can reasonably be done of the work, such as chopping wood, etc., which, if left, would be necessary labor on Sunday.

THE GERMAZONE SWINDLE.

I am glad you have told us what a simple and cheap remedy germazone is (p. 785, Dec. 1). I have used it for nearly ten years, and find it a splendid remedy for roup and bowel trouble; and, when used with chloride of lime, it is good for the treatment of canker, which resembles diphtheria, and is even worse to combat than roup. The price I paid was exorbitant, yet I suppose I should have failed to get the benefit of it if my attention had not been called to it by an advertisement.

TEMPERATURE; VARIATIONS IN THE SAME LOCALITY, ETC.

I have been reading your remarks on temperature, page 70, Jan. 15. On the coldest night of the present winter, our thermometer, a minimum-registering instrument which has proved quite reliable during nearly twenty years, was at the north side of the house, but in a somewhat sheltered location, and registered 3 above zero. In and around the town of Alamagordo, about seven miles away, temperatures reported varied from 8 below to 21 below zero. The government thermometer, near town, recorded 14 below. I can readily believe all of these temperatures to be approximately correct, and I base the opinion on the following incident: Something like forty years ago, in Iowa, I looked at the thermometer before sunrise, and it stood at 40. On go-

ing a little beyond the stables, on a side-hill facing the west, and only about thirty rods from the house, I saw frost on the grass. I returned to the house and laid the thermometer in the grass near by, but it still remained at 40. I then took it to the side-hill and laid it down in the frosty grass, when it quickly dropped to 30. In the case of the varying temperatures at Alamagordo, the currents of air from the canyons in the mountains near by might have caused the difference.

A FEW WORDS ABOUT HAWKS, ETC.

It is pretty expensive waiting for each individual hawk to "acquire the habit" of catching chickens when one has chickens worth from one to five dollars each; and nearly all kinds will catch chickens sometimes, and song birds often. I seldom disturb harriers, though even *they* sometimes get a chicken. I have seen a pigeon hawk (or, rather, a sharp-shinned hawk, which is practically the same) pick a robin, larger than himself, from the top of a post, and easily fly with it 25 or 30 rods to a sheltered place in a grove where I soon dispatched him; but he had killed the bird. In Iowa, Harlan's hawk, a very large species, seldom troubles chickens; but in Virginia they are very destructive.

BURDETT HASSETT.

Alamagordo, N. Mex., Feb. 4.

Let me add one thing more about temperature. There may be quite a variation in a very short space of time. Years ago I was one night undecided about whether to call up the help and put the sashes on the cold-frames, etc. I was on the watch long before daylight; but when the sun was up, and no damage, I breathed easier and went to breakfast; but frost came so as to do quite a little harm in spots *after* the sun had been up a full half-hour. I hope all will "take notice" again that the germazone sold at 50 cts. a bottle is less than one cent's worth of permanganate of potash, with a little alum added. What do you think of the man (or poultry editor) who would consent to be a party to such a transaction?

A PLAINTIVE LETTER FROM A BROTHER BEEKEEPER WHO IS "BEHIND THE IRON BARS."

The letter below came during my absence in Florida. Along with it was quite an interesting protest against our government for being a party in the liquor business. The letter was rather long, and several things our friend urged at the time have since come to pass, so we give only the closing paragraph as follows:

Mr. Root.—I beg your pardon for writing to you without an introduction; but knowing as well as I do the curse of whisky I have taken this liberty. I am, perhaps, only a convict; but if a word of mine will help to prevent any young man or girl from traveling the same road whisky has taken me, gladly will I speak that word. I had a Christian father and mother. Whisky separated me from them; a good Christian sister—whisky parted me from her. I was respected by many friends, but whisky took the respect from me, and left me—what? Why, nothing but a prison; and yet after all it may be all

for the best that I came here when I did. I am but twenty-five years old. I see where I have made mistakes, and I intend to turn those same mistakes into future profit by not making them again.

Asking your pardon for this long letter, I beg to remain yours truly until prohibition really prohibits.
Pittsburgh, Pa. A7361, N. S.

Permit me to say, dear brother, I looked over the letter above with careful scrutiny

to find some place where you recognize the importance in a crisis like this of *divine help*; and although you do not close by asking the readers of GLEANINGS to pray for you, I am going to ask our good friends to remember our unfortunate brother who is in trouble, even yet, inside of prison walls.

Poultry Department

RHODE ISLAND REDS AND MOVING THEM TO ANOTHER NEST WHEN THEY WANT TO SIT.

Mr. Root:—In the May 1st issue of GLEANINGS, page 321, I am a little surprised at the remark of your correspondent in regard to the Rhode Island Red pullets not sitting when removed from one nest to another. My flock is composed mostly of Rhode Island Reds; and out of 25 sitting hens and pullets I have been compelled to move 24, and some of them quite long distances, and not one has refused to sit. With the mixed Leghorns and Plymouth Rocks I have not been so successful.

Now in regard to my management of sitting hens. I have a sitting-room screened off with chicken wire and burlap—formerly bran and chop sacks—from one of the hen-houses, and in this room I place just as many individual nests as I have hens ready to sit. I place in each of these nests two eggs—not porcelain nor rotten eggs, but good ones. After dark I take my hens gently from their nests, one at a time, and carry them in my arm in the same position in which they were sitting, put them on the new nests, and shut them on the nests. In this room I place vessels containing water, feed, grit, and a dust-box. In the afternoon of the following day I let the hens off to eat; and when I am doing up the evening work I slip my hand under them, take out the two eggs and lay before and around them thirteen or fifteen eggs. This is done in daylight; and by the time I have finished up my other evening work around the chicken-yard, and go in to see how they are getting along, they will have all the eggs rolled under and be hovering them very contentedly.

This plan is much more simple and satisfactory than my incubator experience, for all I have to do is to see that they have plenty of feed and water, and look in two or three times a day when other duties call me to the hen-house, to see that no two hens are sitting on the same nest—a very rare occurrence, and never with the Rhode Island Reds.

There is only one drawback to this plan, and that is when the hens are set at different times, and the first sittings begin to hatch. At this time some of the other hens are liable to get excited and want to help mother the chickens when the chickens are very noisy, and sometimes it becomes necessary to remove the hatching hens; but as the nests are made single, it is very easy to pick up the nest and carefully carry it to some other building.

Fayetteville, Ark., May 26. MISS C. E. JORDAN.

My good friend, I am very glad to get the above; and that is about the way the Rhode Island sitting hens behave here in the North. But when I went over to neighbor Rood's and asked him if he had any sitting hens, he replied, "Yes, plenty of them; but I fear they will not *continue* to sit if you move them to some other nest—at least they will not with me. But perhaps they will work better with an experienced man (?) like yourself." Well, I went and

got three, off the nests, that seemed fully determined to sit; but they were all off the notion when they got over to my premises, in spite of putting boxes over the hens, nests and all. I wish to say to their credit, however, that all three raised nice broods after a laying of eggs; and, best of all, *all three* commenced laying again when the chickens were about three weeks old. Now you say, my friend, you shut them on their nests; but you do not tell exactly how, but I infer you put some sort of box over them so as to keep them in the dark, as you say further along that your nests were all made single.

GROUND MUSTARD FOR CHICKENS.

Some time last winter I saw an advertisement in one of our poultry journals of the R. T. French Co., of Rochester, N. Y. Their principal business seems to be putting up mustard for the whole wide world, chickens included. After some correspondence I ordered a barrel at 18 cts. per lb., laid down at Bradentown, Fla. When the package was unloaded from the steamer it was so badly broken that the transportation company went and got a new barrel to hold it. They told me there was quite a lot of sneezing, and wiping of eyes, before they got the "stuff" transferred. Permit me to say here that the French Co. made good all the loss of mustard, taking the task off my own hands of settling with the railroad company.

Two things prevented my giving the mustard a fair test with my flock of forty or fifty chickens. First, it was near time to go north. Second, I had been feeding them for a month or more with Conkey's "laying tonic," so they had been giving me 35 or 40 eggs from 60 laying hens. I think you will agree with me that it would be pretty hard to make an improvement under such circumstances with mustard or any thing else. Not so, however, with the Indian Runner ducks. Eighteen laying ducks had been giving fourteen or fifteen eggs nearly all winter; but about two weeks before the receipt of my mustard they had for some reason gone down to ten or eleven eggs. Within three days, possibly four,

after I began putting mustard in their mash I got 17 eggs from 18 ducks. The ground mustard was so strong that Mrs. Root put some of it on the table, and it seemed to answer every purpose of the high-priced mustard we get in little tin cans at the grocery. As the barrel of mustard was quite a spell on the way it did not reach us in time to give it a long trial before we went north. I used it in the wet mash with chicks of all ages, and they were very greedy for it, and it seemed to do them good. I did not bring any of the mustard here to Medina, because I do not get time while here to do very much with chickens.

A great many of the friends have been inquiring how much mustard should be given, say to a dozen fowls every day. Now,

I have not their directions at hand, but my impression is that we used a tablespoonful for each dozen fowls in their mash once a day. The mash we used was about equal parts of bran and middlings, sometimes adding Indian meal. The mustard is thoroughly stirred into the bran and middlings before adding water; then add just enough to make it crumbly, not wet. The amount suggested makes it taste pretty strongly of mustard; but the fowls do not seem to mind it. In fact, they will eat greedily green mustard growing in the garden when it is so pungent that even a little bit of leaf chewed up you will find about all you can stand. As the fowls seem to crave all such pungent green stuff, I am inclined to think that mustard must be good for them.

Temperance

THE CRISIS IS COMING.

Slavery was not abolished without bloodshed, and it has been frequently remarked that there will probably be bloodshed before the liquor business is in a like manner banished from our land. In the *Baltimore Evening Sun* for June 21 we note that W. H. Anderson, superintendent of the Baltimore Anti-saloon League, was assaulted in his office by Robert L. Ulman, son of a former whisky-distiller. Young Ulman commenced the assault with a "dog whip;" but Anderson, who is a big man (in several ways) took the whip away from his assailant, choked him into submission (but did not strike a blow), and then let up on his promise of good behavior. The reporter asked him if he was going to nurse his right eye on the morrow. He replied, "No. I am going to preach to-morrow morning at the Mount Royal Methodist Protestant Church, and I'll take the black eye right up in the pulpit."

Here is the letter that Mr. Anderson wrote that so incensed the liquor-dealer's son. What do you think of it?

Before long, when a brewer buys an automobile, people will figure how many children were robbed of carfare to the parks before the price of the auto filtered to him in profits. When some distiller contributes to charity, or builds a church, or finances some similar enterprise, folks will begin to wonder how many men were robbed of the hope of heaven by the stuff which he sold for profit, knowing it to be injurious, to enable him to pose as a generous patron of the church. When the wife of some distiller or wholesale liquor-dealer or prominent grocer who makes a specialty of liquor blossoms out in a diamond necklace at the theater, the margins of programs may be covered with calculations of how many children and mothers have gone without decent clothes in order that she may shine resplendent. And the day is not far distant when the socially prominent wife of a man who has made his money out of the liquor-traffic, upon giving some lavish entertainment in a palatial home, will find that even

the guests will involuntarily trace the connections between that luxury and the hovels in the slums, and the pitiful sight of household goods on the sidewalk where a drunkard's family has been evicted for nonpayment of rent, and regard her as a social parasite.

The managing editor of some of the great papers said to me not long ago: "The greatest victory which the temperance folks have won to date is the creation of a public sentiment to the effect that wealth derived from liquor is not as respectable as 'clean money,' and which has put its possessors on the defensive."

Unless some people who now flatter themselves that they are of the very elect wake up to what is going on they will find that they are without standing in the aristocracy of service and the nobility of unselfishness. And if their intelligence is too dull and their conscience too sluggish to see it, it will be of service to them, as well as to the community, to awaken them with as much of a jar as is necessary.

WILLIAM H. ANDERSON,

Supt. Anti-saloon League of Maryland.

Baltimore, June 16.

FLORIDA'S RECENT VICTORY, FOR WHICH MAY GOD BE PRAISED.

I have just received notice that the good friends of temperance in Florida have succeeded in securing ten different temperance measures. Of the ten, I copy below 1, 3, 8, 10.

1. To prohibit personal solicitation for sale of liquors in dry territory.

3. To prohibit the shipment of liquors from without the State into any dry county or precinct within the State except for personal use.

8. To prohibit the shipment of liquors from wet counties within the State to any dry county or precinct within the State except for personal use.

10. To provide for seizure of all liquors shipped otherwise, or found in dry territory in quantities greater than demanded for personal use.

Perhaps I should add that 37 of the 48 counties of Florida are dry.

Perhaps I might mention that it was my privilege to lend a helping hand in securing the above. The superintendent, in closing his letter, says:

Too great praise can not be given the donors or guarantors of the legislative fund. I constantly thank God for every one of you. Our work would have been impossible without your liberality. And I know that our Father in heaven will abundantly bless you for your liberality and fidelity to his work—specifically the securing of measures moving toward the ultimate extermination of the beverage liquor traffic.

C. W. CROOKE,

Supt. Anti-saloon League of Florida.
Jacksonville, Fla., June 19.

WEST VIRGINIA AND ITS GREAT VICTORY—A KINDLY REBUKE TO A. I. ROOT.

Brother Root:—I send you under separate cover *The Wheeling Advance*, where you will find the latest returns of the wet and dry votes of West Virginia. I felt a little sad when I saw no mention made in GLEANINGS of our great victory in West Virginia. I feel sure, dear old friend, that the good news of our State going dry would fill your soul with gladness. We must give great credit to Billy Sunday and to the good people of Ohio as well as those of adjoining States for our great victory. Our good people are now helping those of Ohio, not only to fight the saloons, but to shut down breweries and distilleries. The prayers of all our good people will do it.

Elm Grove, W. Va., Nov. 27. WM. BITZER.

My good friend, I supposed I had made mention of and publicly thanked God for the overwhelming victory in West Virginia. Your letter came here during my absence or the matter would have been attended to sooner. I am glad to know that Billy Sunday had a part in that grand work. May God send us more Billy Sundays. Since your kind letter was written, some great victories have been brought about, as you are perhaps well aware, not the least among which is the conferring on the women of Illinois the right to vote in that State just as men do. That means an addition of 1,600,000 voters, most of whom can be counted on as being against the saloon.

"OUT OF THE DARKNESS AND INTO THE LIGHT."

Dear Bro. Root:—I'm a subscriber of GLEANINGS, and have been a close reader of *Our Homes*—so much so that your August number has made a remarkable change in me. I've been a user of tobacco for thirty odd years, and I've been able to quit, and have no desire for it at the present time. I have improved in health, and gained fifteen pounds. Not only that, I've been also converted, and I'm now a member of the Baptist Church here. Your writings in the Home Department, and your unselfish plea for righteousness, have had a great deal to do with my spiritual welfare, and I take this means of acknowledging the same, and I hope that you and your good wife may enjoy the best of health, and God grant that the evening time of your life may be thrown out in a long twilight, and you be able to do a great deal more good for your Master yet. This is the prayer of a sinner saved by the grace of God.

Leadwood, Mo., Nov. 11.

FRED WORTH.

May God be praised for what you tell us, my good friend. I trust that, when your eyes rest on this, you will have met no serious discouragement, and that you still are "holding the fort." You have probably

had your share of trials and temptations; and may be sometimes you have felt discouraged; but let me point to you a gem in God's holy word—"Great peace have they that love thy law, and nothing shall offend them." Do not be offended, my brother, no matter what turns up or comes up. Look pleasant; hold on, and the promise will surely be yours. Once more, may God speed you in the new life you have commenced to live. By the way, the above confession reminds me of the following which I extract from the *American Magazine* for October, 1912. The words are spoken by the great reformer Charles B. Towns:

"You can't talk to me about tobacco. The tobacco-user is in the wrong. It undermines his nervous strength. It blunts the edge of his mind. It gives him 'off' days when he doesn't feel up to his work. It always precedes alcoholism and drug addiction. I've never had a drug case nor an alcoholic case (excepting a few women) that didn't have a history of excessive tobacco-smoking. Inhaling tobacco is just as injurious as moderate opium-smoking, and the same treatment is used to destroy the craving. There's a plain fact that has a jolt in it for some of you smokers. I'd like to train about a million men in this country to say, 'It's tobacco!'—like that—'it's tobacco!' whenever they hear a man say he isn't feeling quite fit. A million people saying 'It's tobacco!' every day—that would get us somewhere."

ILLINOIS GIVES WOMAN SUFFRAGE.

We clip the following from the *Cleveland Plain Dealer*:

SPRINGFIELD, June 26.—Gov. Dunne to-day signed the woman suffrage bill passed by the General Assembly. The bill provides that Illinois women of legal age may vote for all statutory offices.

By his signature Gov. Dunne made Illinois the first State east of the Mississippi to give women the right of the ballot. The bill will become law on July 1.

If the men who voted against woman suffrage in Ohio and Michigan do not feel somewhat ashamed of themselves when they see the above, they certainly ought to.

LEVEL CULTURE FOR POTATOES IN FLORIDA.

Friend Root:—GLEANINGS is received, and potato article read. You know receiving this copy of GLEANINGS carried me back 30 years when I was at Sarasota keeping bees and reading GLEANINGS. Those were some of the happiest days of my life, settled in the woods a mile and a half from any house, with my bees and garden. I was then a potato-grower, and read your book on level culture for potatoes, and it was a success. Working dirt to potatoes in this country won't do. They put on small potatoes all up the stalk as far as the dirt covers it.

When I ran a fine-tooth harrow over the ground after potatoes were just through the ground it took lots of faith in A. I. Root not to feel that I had ruined my crop; but two or three days showed to me that you were right.

Bradentown, Fla., June 16. S. C. CORWIN.

I had a fine crop of honey from my back-lot apiary, and feel that much of it is due to A. I. Root.
Rapid City, S. D., Dec. 21. ALICE A. FRENCH.

Cleanings in Bee Culture

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Editorial

A HIGH WIND DURING THE MATING HOURS OF THE DAY WILL SOMETIMES PLAY SERIOUS HAVOC WITH QUEEN-REARING OPERATIONS.

ON Sunday and Monday, July 13 and 14, as mentioned elsewhere, a very high wind—almost a hurricane—struck our basswood apiary where there are 450 nuclei for queen-rearing. This wind came up suddenly while the queens were in the air seeking their consorts. The next day, and the day following, showed that the nuclei were queenless. The presumption is that the queens, and possibly the drones too, were carried miles and miles away by the high wind, lost their bearings, and, of course, did not return.

OUT AMONG THE BEES; EDITORIALS INSPIRED BY OUTDOOR WORK.

PERHAPS the discriminating reader may have noticed the larger amount of editorial matter than usual, and the further fact that these editorials smack of actual work in the field. As related elsewhere, our boys have been very much overworked, and hence the editor has been compelled at times to give a helping hand. In order to keep up our correspondence, we have in a few instances transferred the office to the automobile. While the truck is going in one direction the editor and his auto would be going in another with a couple of men. While they were at work among the bees we have been receiving inspiration and delight as we sat in the machine in the shade of a tree listening to the hum of the bees and the song of birds—no telephones, no traveling men, no clerks, no one to interrupt. This morning, July 23, we cleaned up quite a batch of stuff; and if the reader finds any help in our editorial buzzings of late he may lay it to the outdoor air and contact with the bees themselves.

HONEY-CROP CONDITIONS AND PRICES.

THERE is not much new to report this time except to say that the white-clover yield in many localities has been the heaviest ever known; and, strangely enough, there are some places where the clover failed, either because of drouth or an early freeze.

But the yield from the favored spots has been exceptionally heavy if we may judge from the numerous offerings we have received from beekeepers who are anxious to dispose of their crop.

In the mean time it begins to look as if the yield from alfalfa will be below normal in some of the alfalfa regions; but just how much we are not able to say at this writing. The almost entire failure in California, and the lighter yield of alfalfa, will probably prevent a slump in the price of clover extracted. Our Western beekeepers would do well to dispose of their crops in the West where prices will be firmer, rather than unload them in the East and run the danger of smashing the honey market. We see no reason why there should be a great tumble, and hope there will not be. Beekeepers of the East and West should study the markets and ship their crops where they can do the best.

THE SCHOOLS OF DRONES IN THE AIR.

WE have had reports in the past as to how drones would congregate in large numbers—so much so as to seem almost like a swarm. Their very loud noise can be heard at a considerable distance; and when there are thousands and thousands of them in the air, as there are sometimes, they naturally attract virgin queens seeking their mates. An instance of this kind is reported by the manager of our basswood apiary, Mr. Pritchard. As it is such a striking confirmation of what others have reported we asked him to write it up, and here it is:

About 3 o'clock on the afternoon of Monday, July 14, I heard a loud humming over the meadow which borders the south side of the mating-yard at the basswood apiary; and on going out from under the trees I found that a great congregation of drones were flying about, nearly as high as the tree-tops, and that the virgin queens were coming from the mating-boxes in astonishing numbers. When a queen came from under the trees a number of drones (in some instances apparently 20 or more) would circle close about the queen, resembling a small but very active swarm. They would dash high and low for a few seconds until one of the drones would clasp the queen and fall, the rest of the drones following them until they struck the ground. Four such swarms of drones were in sight at one time, and scarcely a moment passed during the few minutes I watched them that one or more was not in sight.

The wind had blown a gale all Saturday and

Sunday, and no drones were flying. Monday forenoon was rainy; but after noon the sun came out bright, and the drones were having their first fly for three days, which probably accounts for the unusual number of queens mating at this time. There are 450 mating nuclei in the yard.

Medina, O., July 15.

M. T. PRITCHARD.

CRACKED-WHEAT MUFFINS AND NEW HONEY.

WE have been eating at our house, for several weeks back, muffins made of cracked wheat which surpass any thing else we have ever tried. We buy the wheat and grind it in a little hand grinder, which can be secured at the large hardware stores or mail-order houses. We do not grind the wheat fine, but adjust the machine so that the flour will be coarse. This cracked wheat is then sifted, the finer portions being used for muffins as aforesaid, and the coarser for a breakfast food which is boiled for four hours over a low flame. When served cold with new honey it is simply delicious. The cracked-wheat muffins served hot with good butter and new honey make a meal—well, just try it for yourself. The muffins have a nice nutty flavor, and the grits covering the wheat itself will clean out the system that may have become clogged up, better than any cathartic that has ever been devised; and it does it in Nature's own way.

We asked Mrs. Root to write out the recipe for the muffins. "Oh!" said she, "any woman knows how to make muffins;" but we doubt if all know how to make something as delicious and fine as we have at our house. Here is the recipe:

Two cups whole-wheat flour; 1 tablespoonful white flour; $\frac{1}{2}$ teaspoonful salt; $\frac{3}{4}$ cup sugar; 2 eggs; 1 cup sour milk or buttermilk; $\frac{3}{4}$ teaspoonful soda; 1 tablespoonful melted butter.

We took out of one of our hives a frame of white-clover honey just built out on medium brood foundation; and, say, you would be surprised that the midrib of the wax is hardly noticeable. We cut this frame up into squares and put it on plates. When served in this way it looks as nice and tastes as fine as the finest comb honey from sections, and at a great deal less cost. Now, then, take some of this honey and put it on a piece of muffin with good butter; and if you do not have a feast fit for a king, we shall be surprised. The wax chews up with the muffin without leaving a particle of "gob."

GREASY WASTE V. DRY COTTON WASTE FOR SMOKER FUEL.

WE use in all our yards greasy waste, and our men all prefer it to any other fuel for smokers; but Mr. Morris, our foul-brood inspector, in one of his trips referred to elsewhere carried with him some dry or clean waste, remarking that he did not like to carry the greasy stuff that would spoil

every thing with which it came in contact. The smoker was loaded with greasy waste to start on; then it was reloaded with dry waste, and all at once we thought the bees were fearfully cross. We could hardly drive them down, and they stung so terribly that once we were driven to cover. We then remembered that Mr. Arthur C. Miller uttered a word of caution against using cotton rags for smoker fuel, saying that it irritated the bees. We did not agree with him, because we had used greasy waste—hundreds of pounds of it—with the greatest of satisfaction. We did not then think that the presence of grease possibly and probably modified the effect. We do not even yet know whether it does or not; but we present the facts as above given; and if anybody else has had a similar experience we should like to hear from him.

We imagine our friend Arthur will be smiling up his sleeves with the grim satisfaction, "I told you so." If there is any one else who can smile with him, we hope he will let us hear from him.

Perhaps it will tone down Mr. Miller's smile when we say that the time when the bees began to get cross was along about five o'clock; but the evening was not cool, nor had the temperature materially changed. Was it the time of day, or was it the cotton waste that made the bees drive us to cover?

It would hardly be proper to print all that Mr. Morris said when some two or three dozen bees, more or less, were hanging by their stings imbedded in his bare arms, such as "You little ——! ——!! ——!!! Ouch!" The crowd of good-natured farmers with their wives had a laugh at his expense.

Later.—We have just had a talk with our apiarist, Mr. Marchant, with regard to dry cotton waste for smoker fuel. "You can tell Mr. Miller," he said, "that he can make that smile a little broader if he likes, because I entirely agree with him. I find corneobs equally objectionable; but greasy waste is all right. My father, A. B. Marchant, of Florida, now uses nothing else. It is the best fuel he ever used."

Still later.—Day before yesterday, July 21, the inspector and ourself went on another tour of inspection. We remarked:

"Say, Morris, are you going to use any more of that dry cotton waste?"

"Why not?"

"You know how the bees stung us."

"Fudge! I have been using that kind of fuel right along."

So saying he proceeded to fill up his smoker with more dry waste. We went over about a dozen colonies; and notwithstanding there was quite a party of visitors

looking on, nobody was stung—much less the inspectors and ourselves. The bees were very quiet.

"We have a story for next GLEANINGS, telling how you were stung when using dry cotton waste."

"Have, eh? Well, it is my opinion that the late hours of the day and the checking of the honey-flow would account for the ugly temper of the bees rather than the fuel in the smokers."

There, dear reader, you have all the pros and cons; and if you have any facts that bear on this question, speak out your mind. Mr. Miller has a complete analysis of the case, and he is at liberty to diagnose it as he likes.

FAIR QUESTIONS: IS IT EVER NECESSARY TO
SHIN UP TREES AFTER SWARMS IN A
MODERN APIARY?

THE following letter is a very natural inquiry. We knew it would come, and here it is:

I noticed last year at swarming time you said in GLEANINGS you were all shinning up trees for swarms and that next year there would be none of that; but this year I notice you are at the very same thing again. What kind of system are you working your bees on that gives such results? Readers would probably like to know, so as to steer clear of it.
Galena, Kan., July 6. J. P. BEUMFIELD.

One apiarist and two helpers are taking care of 500 colonies of bees. These men are able, in connection with the automobile truck, to take care of the whole proposition when conditions are normal. When they are abnormal, they necessarily have to have help at times; and that help this season has had to come from the editorial force, as all other departments were too busy to supply any men; and, besides, we feel that editors ought to rub up against the real proposition from time to time in order to have a proper working knowledge of actual conditions in the yards. But the real question is, "Why is it ever necessary to shin up trees after swarms in the modern apiary?" Dr. Miller once said that he did not have to climb trees for swarms, because he clipped his queens' wings. But we can not practice clipping, because many of our customers do not want the symmetry of their queens marred. Then why not use drone-traps? These put more or less obstruction at the entrances, and interfere with the proper ventilation of the hive. It necessarily follows, then, that when a swarm takes a notion to cluster in a tree somebody will have to do some shinning. But the next question to raise is, "Why allow the swarms to come out in the first place?" Why not cut out all cells, and thus keep swarming down? This will go a long way; but in the height

of queen-rearing operations, furnishing bees in pound packages, sometimes at the rate of 100 lbs. a day, it is impossible to get around to all the colonies if there comes a heavy rush of honey. We had weather conditions for a few days when the bees would fill up their super in five or six days; and, mind you, some of these were ten-frame extracting supers. The honey came with such a rush that it was impossible to get it off in time. Swarming cells got started, and, of course, swarms would come out with supers nearly completed. You may say we ought to have had more men; but when an abnormal and unexpected season comes along it is practically impossible to get all the help needed.

But we are here confronted with another condition. We have one apiary of Carniolans, and these bees will violate every known rule of swarming. For instance, they will continue swarming, even after the honey-flow has stopped. They will swarm without a queen. We have demonstrated that time and again. We had one queenless colony of Carniolans that swarmed, went across the country, and was finally hived by a man about five miles away. The next day he brought them to us, and it took a five-dollar bill to get them. We put them into a hive and gave them a frame of unsealed brood, and they began building cells. It may be said that they lost their queen; but we have had so many cases of Carniolans absconding without queens that we know that this one had none. During the past few days we have had at the rate of five swarms a day from our Carniolan apiary *after the honey-flow had stopped*, and robbing would start up if we were not careful. The other apiaries of Italians ceased all attempts at swarming; but they will not stand overloaded supers or swarming cells.

One of the best beekeepers in Ontario wrote us a few days ago, saying that he was nearly worn out; that he had secured an enormous crop of honey; that the swarms were getting away from him; and, while he would like to get honey, he believed he was about ready to have the flow let up, as he could not do the work. Other practical beekeepers have been hit the same way. Even when clipping is practiced, a swarm will sometimes come out with a virgin, and make for the top of a tree. Somebody has got to do some shinning; and usually it is the overworked apiarist, who can not get help at that season of the year for love or money.

FOUL-BROOD INSPECTION.

FOR the past few days we have been having some experience in going around with

State Foul-brood Inspector Morris. It is not surprising that there should be plenty of bees in and around Medina; and naturally enough the A. I. Root Co. are anxious that there be no disease within reach of our own bees. We have been going out with the inspector several miles in all directions from our home and outyards, and it is surprising to note the number of small beekeepers that we have been able to locate.

Mr. Morris' experience has been about the same as that of most foul-brood inspectors. Occasionally he strikes a beekeeper who looks at the State foul-brood law as an unmitigated nuisance. Such persons feel that the State has no right to interfere with their work or property. When they are approached by the urbane inspector he may give expression to a few cuss words, and talk as if he had a shot-gun right handy. But Mr. Morris' good-natured twinkle and banter are equal to the occasion. He will josh away at the fellow until he gets him to laughing, and then all is smooth sailing. He had an experience of this kind with one man who did not propose to be inspected, but who was, just the same; and Mr. Morris had his good will and friendly co-operation.

Quite different was the reception we received yesterday, July 16, east of Medina. As is his custom, Mr. Morris steps out of the machine, knocks at the door, and asks if the man or woman of the house is present. Then he explains his mission. This is quite an important procedure; and the *manner* of doing it is no less important, said Mr. Morris. It strokes the hair the wrong way to go into a man's yard without asking his permission.

Mr. Morris made a great hit among several beekeepers yesterday. They said they were glad to see him, hoping that he would come their way again. On one occasion the owner called to his wife, who was out in the hay-field helping, because he said she was the beeman. Her greeting, as she apologized for being out in the field, was no less cordial than that of her husband. She had a nice little apiary, and she was up to date in her methods, for she was familiar with the Alexander plan of increase and producing comb honey. She and her husband asked many questions, and at the close of the inspection work they both expressed their pleasure at having been honored by a visit from a State official. They were delighted, also, to learn that their bees were nice stock, and that they were able to present a clean bill of health.

They readily gave us the names of other beekeepers, and jumped into the machine and helped us to inspect. "My!" said Mr.

Morris, after finishing up his afternoon's work, "that was a great snap. If a fellow could always strike an enthusiastic beekeeper and get him or her to go around and introduce us to the rest of them, every thing would be lovely."

Mr. Morris left a pleasant impression. He is a great story-teller and a joker; and while he is telling a story he throws in practical suggestions that make a beekeeper feel that the State, so far from interfering with his property and business, is giving him a real help.

Chief Inspector Shaw has a corps of men that are doing splendid work, notwithstanding the powers that be have cut down their appropriation to an amount much smaller than last year. Prof. Shaw, however, is economizing in every way possible; and if our men who are higher up in authority could only know the good these little appropriations are doing to the farmers and beekeepers at large, they would spend their money more judiciously. Well, to return:

When Mr. Morris and ourself started out on the afternoon of the 15th we had to feel our way. We did not know how many beekeepers there were, nor where they were located. Once we stopped near a lot of rank sweet clover. It was fairly covered with bees. We remarked that there must be a lot of bees somewhere near. Apparently they came from one of our outyards two miles and a half away, but yet that did not seem probable. We then began lining up, which was somewhat difficult, owing to the position of the sun. We were of the opinion that there must be a lot of bees near at hand. A drive of a quarter of a mile down the road soon brought us in contact with some thirty odd colonies within about an eighth of a mile of each other. This particular location has never had any bee disease, and apparently never will have.

HOW THE ROAD SUPERVISORS CUT DOWN
SWEET CLOVER, AND LET THE REAL
WEEDS GROW.

Every now and then we could see where the road supervisors had cut down sweet clover, a genuine forage plant, and had left the noxious weeds of the very worst kind along the ditches and on the banks. Sweet clover follows the road, and can be very easily reached by a mowing-machine, so the road supervisor reaches out as far as he can, and, of, course, destroys the sweet clover and only that.

Professor Shaw was very anxious to get an amendment to our law, eliminating sweet clover from the list of noxious weeds; but our Ohio legislature was jammed full of other bills, and many needed laws were sidetracked.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

CLOVER-YIELD began here ahead of any thing ever known before. What the drouth will do with it remains to be seen.

B. M. CARAWAY reports that in Texas bees get nectar and pollen from beans. Texas may yet rival California with its big bean-fields.

MR. EDITOR, when beginners read, p. 433, about your "shinning up trees" after swarms, some of them will be likely to ask, "Why don't you clip your queens?"

OTTO DENGK reports, *Leipz. Bztg.*, 17, that colonies which had not quite filled out their hives with comb the previous year were 8 to 14 days earlier to swarm than those which had no comb to build before swarming; and this was so year after year.

ILLINOIS is a good State to live in, and I'm more proud of it than ever before. The legislature has passed a bill, and the governor has signed it, which gives women the right to vote for presidents, mayors, etc., including the right to vote for or against saloons. You may be sure the liquor men didn't work hard for the passage of the bill. Sorry for your Ohio women. But it's only a question of time.

RIGHT you are, Mr. Editor, p. 437, in thinking "that more and more beekeepers are beginning to accept the deep space under the frames as better than a shallow space." It's a hard job for me to use properly the English language. What I was trying to say was that more and more beekeepers were not satisfied with a space as small as half an inch, or even an inch, between floor and bottom-bars.

I'VE always had just a little doubt as to the statement that bees are of more value as fertilizers than as honey-gatherers; but that cranberry business, p. 479, may yet remove all doubts. I hope we may soon have definite figures as to the actual gain in dollars and cents made by the bees. It may make some of us old fogies open our eyes. Then may be we could also get figures of the same kind for the apple and other fruit crops.

DANGEROUS, perhaps, to but in in that Byer-Chadwick squabble, p. 441, but I think it quite possible both men may be right, and that "locality" may again be a factor. In Canada, the cold prevents the rapid building-up of a colony in an eight-frame hive, as compared with the stronger colonies in ten-frame hives, while in the warmer California clime the colony in the small hive

builds up rapidly, and can sooner be squeezed into supers than if in a larger hive.

A CALIFORNIAN wants my latest "think" about European foul brood. I *think* that, in its treatment, ten days—possibly a week—without a laying queen, is long enough; that under any kind of treatment the disease is likely to crop out again. By prompt treatment you can get good crops in spite of disease; and yet it takes very little of it to lower materially the yield of a colony. My hybrids seem as resistant as the Italians, yet further experience may show the Italians ahead. In general I think Italians are better at cleaning up than hybrids. At any rate, if I had average hybrids I'd hustle to get in the best Italian blood I could find.

EXASPERATING. I don't know any milder word for the feeling one so often has when honey is mentioned with no hint whether comb or extracted is meant. An instance occurs in GLEANINGS, p. 478. "Our foreman has set his stake at 100 lbs. per colony, spring count." I'd like to beat that if I can, but how do I know where to set my stake without knowing whether that 100 means comb or extracted? Which is it, Mr. Editor? Another case is foul brood. With no qualifying word, how can one tell which of two distinct diseases is meant—American foul brood or European foul brood? [In connection with our honey-yields we have spoken of power extractors, honey-pumps, capping-melters, etc. We have said nothing about the production of comb honey in sections, so we did not think it necessary to specify extracted when we were talking only about that. We grant you, however, that it might be well to specify each time what is meant, because it is much easier to produce 100 lbs. of extracted honey than the same amount of comb. As a matter of fact, 90 per cent of our honey will be extracted, and 10 per cent will be in shallow extracting-frames to be cut up into small squares. These will be put into cartons for Pullman-car service. In running for the production of bees and queens it is not practicable to produce comb honey in sections. Our crop is, therefore, bees and queens, extracted honey, and a very little cut comb honey.]

When we speak of foul brood we very often use it in a general sense, meaning either one of the contagious brood diseases. As we have no European foul brood in this locality, and never did have, the term "foul brood" has reference to the common or old-fashioned kind—namely, American foul brood.—ED.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

TEN-FRAME COLONIES READY FOR THE SUPERS FIRST.

P. C. Chadwick, page 441, reads more out of that item of mine taken from the *American Bee Journal* than I intended. He says that, when I say my bees always enter the supers quicker from the large hives than they do from the eight-frame L., I upset the theory of an eight-frame hive for comb honey. By "supers" of course I meant extracting-supers, as I produce extracted honey almost exclusively. Entering comb-honey supers is a different matter altogether, as we all know that, for producing comb-honey, the bees have to be crowded to a certain extent. I have no ax to grind in the matter of sizes of hives; but it has certainly been my experience always, that the larger hives are ready for the extracting-supers nearly always before the few eight-frame hives that I have.

* * *

I am strongly in favor of having an abundance of old stores in the hive during a long period of cold weather like that which we experienced this year. Two of my apiaries were rather short this spring although no colonies actually starved. The other apiaries had an abundance. All were equally strong in bees at the start, but what a difference later! Those that were heavy, stored honey in the supers—many did that in willow bloom. The ones a bit short merely held their own through all the cold weather, and many had to be fed to keep them going; while as to measuring up with the other colonies referred to, they are not in the same class. Yes, the longer I keep bees the more I am in favor of "millions at our house," as friend Doolittle expresses it, and spring feeding is more of a nightmare to me than ever. Good job that this is a free country, as the man who likes to have the colonies light in the spring and then tinker with them for months is quite free to do so; while on the other hand, careless free-and-easy chaps like the writer can "stuff them" in the fall and leave the bees alone until willow and fruit bloom.

* * *

SEASON PROSPECTS.

The writer of these notes has been going at a terrific pace for the past three weeks; and at this date, July 7, his fingers are gummed with propolis so that it is hard work to run the typewriter. Perhaps this is an exaggeration; but at any rate my fingers are sore from handling frames; and the

hum of the bees is so persistent in my ears that writing is almost out of the question. We have had a fine crop of honey here in York Co., and the quality, I think, is the best I ever handled. The yield at the north yard has been light, owing to late heavy frosts that cut the clover badly, and then the damage was increased by severe drouth which followed the cold. Reports received as yet are meager; but those from the east say failure, while from western and central Ontario reports are mostly good.

Many reports from the east of Ontario and some parts of the north as well—our own Lovering yard unfortunately being among the number—state that the caterpillars have stripped all the foliage from the basswoods so that there will be no honey from that source in those sections. This pest seems to come periodically, and it is to be hoped that next season will not see a repetition of the plague or there will be danger of the trees being killed outright.

In this locality buckwheat promises well, and recent showers are bringing it along nicely.

* * *

RECORD-KEEPING TAKES TOO MUCH TIME.

Right you are, friend Foster, in what you say regarding book-record systems for the beekeeper who runs hundreds of colonies. From personal observation I am led to believe that not one out of ten who have 200 or more colonies continue very long to use any style of record-keeping that is at all complicated. Yet for all that it is surprising how an extensive beekeeper may "know" so many of his colonies in so far as their record goes from year to year, even when nothing but a hive number or some other marking is the guide to remember them by. Especially is this true where outdoor wintering is practiced and the hives are not changed around very much.

A short time ago, while at one of my outyards I was thinking over this matter, and, by way of test, I made a critical survey of the apiary of about 100 colonies, and in nearly every case I could mentally tell myself just about how every colony had done for the past three years, even when the hives looked nearly all alike. In the majority of cases I am afraid other fellows do much the same, and, all things considered, I do not think it would pay *me* to try to keep any systematic record; indeed, it would be only a "try" for a short time any way, to be discontinued some time when exceptionally busy.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

My bees in town are securing sufficient honey from the pepper trees to keep them breeding nicely. I have divided most of my home yard of 15 colonies. If the bees keep up their present rate for a few weeks some of them will be divided again. Conditions are not so favorable out in the foot hills, where it is very dry and little is doing.

* * *

There were but two days between May 15 and June 15 when there was not fog for a portion of the day. On some days it would last but a few hours, while on others it continued well into the day. This condition ended June 25, with a very unusual rainfall for the time of year, amounting to .40 of an inch in Redlands, which was about an average for the storm. Now, however, we are getting next to the warm side of the sun, the temperature slipping almost daily above the century mark in the interior foothill region, and no trace of the little rain is left. It is not so warm near the coast. A press dispatch from Imperial Valley reports the temperature as having reached 124 on July 7. However, this excessive heat in such a dry climate is not so hard to bear as 100 degrees would be in the more moist air of the eastern States.

* * *

ITALIANIZING.

The question of requeening has agitated my mind more during the past season than at any other time during late years—not that I have been in doubt as to the advisability of requeening with good Italian stock, since black brood is creeping this way from the west, but rather how best to get the pure stock the most quickly and most surely. I have purchased many queens, a few at a time, in my beekeeping life, and for the most part I believe my money has been spent for naught—not that I did not receive what I paid for, but the introducing of a few queens now and then to an apiary of mixed stock seems to me from past experience to be a waste of both time and money. Eight years ago I purchased about 75 queens of different races, which were introduced, but no further effort was made to stock up from any one strain tried, for these queens were purchased as much for an experiment as any thing. But the experiment proved a failure, for at the end of the second season my stock was worse mixed than ever. I have tried about every race of bees known to this country, with the exception of the Caucasians—not one or two of a kind, but enough to make a fair

test, and have come to the conclusion that the Italians are the best all-around race. I am a lover of the goldens, and to that end I am requeening with the light-colored Italians.

* * *

SMALLER PACKAGE WANTED FOR EXTRACTED HONEY.

There is a constantly increasing demand for a smaller package of extracted honey put up by the beekeepers, and under a seal or guarantee of the producers. This is not at all strange in this day and age of the world, when people are in such a rush to keep up with the rest of the world in the mad rush of life. Go into any grocery and observe how almost all goods are handled now days. You call for oatmeal. It is so much a package. If you want vinegar you do not send the little brown jug to the store as of old, but are handed a bottle from the shelf, neatly labeled, and ready for the consumer. The same with nearly every thing in the grocery line. If one goes to a store to sell honey he is often asked how it is put up. He informs the prospective customer that it is in five-gallon pails, two to a case. He is told that it is too bulky to handle in that way; that the trouble and time necessary to put it up in smaller quantities for the consumer make it out of the question, and that, any way, they are getting their honey from J. Jones & Co., put up in smaller amounts just to suit the trade. Well, Jones & Co. get their honey, in all probability, from some dealer who has purchased it from the producer. The dealer is paid a good profit over what he has paid the producer; and the packers, Jones & Co., get a substantial reward for their trouble in getting it ready for the retail trade. This packing should be done by the beekeepers, either individually or co-operatively, and thus save two or three margins paid to middlemen. If fifty or one hundred of the leading producers of this State would agree to ship their honey to a central point, to be graded and put up in packages to suit the retail trade, this object would be accomplished, and a neat profit in addition could be turned into the pockets of the producers. But it is doubtful whether so many producers could be persuaded to enter into a mutual agreement of this kind, for most of them like to do a little business on their own hook, and are jealous for fear the other fellow will get a penny or two more out of the deal than they. There will always be a demand for the packer's product, but we could increase our sales very much by some effort on our own part.

Beekkeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

CHICO OR GREASEWOOD.

I am glad to have the correction of Mr. J. A. Green regarding my description of chico instead of greasewood. I took the word of the beemen with whom I talked about it, and I should like to hear definitely from some authority. I have just received a letter from a western-slope beekeeper who says the chico is in bloom (June 1), and is furnishing pollen in excessive quantities. Is it chico or greasewood?

* * *

HONEY PROSPECTS.

Feeding through June was necessary in the lower Platte Valley. Some of the districts were so burned by the drouth that it was difficult to keep the bees alive without nearly bankrupting the beekeepers. Sweet clover dried up in the sandy river bottom, and the first alfalfa had little nectar in the bloom.

Prospects do not compare with a year ago in Northern Colorado. We need rain badly; and at this writing, July 2, none of my colonies are working in the supers. We shall have no honey off before July 4, as we generally do. Sweet clover is coming in bloom where it is not already burned by the drouth. We are two inches short of our normal rainfall so far this year. If we could collect the two inches of rainfall before July 10 it would be worth much to the beemen.

In the Arkansas Valley, conditions are better. While rain would be very welcome, the alfalfa and sweet clover are yielding well, and some few cases of comb honey were taken off before July 1. Swarming was more general in the upper Arkansas Valley than lower down.

Grasshoppers are reported thick in the vicinity of Holly, but they are not getting into the fields very far.

Bees were working well on the alfalfa first crop in places heard from in Western Colorado, so conditions are probably fairly well up to normal.

In Southwestern Colorado the season is generally slower in beginning, probably on account of the June freeze that visits that section almost every year. The colonies, however, are in fair shape, and prospects seem to be good for a July and August flow, and perhaps one will materialize in September.

* * *

CREDIT FOR THE BEEKEEPER.

Throughout the great West the proportion of specialists to amateurs and small

beekeepers is large. A considerable proportion of the smaller beekeepers plan upon taking up beekeeping as a specialty.

In buying bees, cash sales are the rule, or at least a large initial payment is required. The reason for this is the rapidity with which an apiary may decrease in value and numbers. The value of bees depends much upon the ability and skill of the beekeeper; and, added to this, an apiary is much subject to conditions of season and climate.

Many apiaries are bought with a down payment of one-third to one-half, and the remainder at the end of one year, or possibly two. When such a large amount of the principal is required the first year, the bees have to do exceptionally well the first season in order to enable the beekeeper to hold his own and to meet the expense for supplies, location rent, horse and wagon, or auto, living expenses for several months till honey can be sold, in addition to the interest on principal and the principal, which is soon due. Interest rates are from 8 to 15 per cent in the West, and in many cases there is a two-per-cent commission besides. I am fairly conversant with beekeepers', farmers', and gardeners' conditions; and the bane of them all is insufficient capital and excessive interest rates on short-time loans. If the average beekeeper could borrow according to his credit at 4 to 5 per cent, with ten to twenty years to pay, instead of at 10 to 12 per cent with one or two years' time the prosperity of the industry would be wonderfully increased. There are hundreds of apiaries that have dwindled through winter losses that could be built up with a supply of low-priced money so that bees could be bought and shipped in to fill these hives.

Why the Bees Balled their Queens

Can you tell me where my trouble lies with my bees? I have two small out-apiaries. I clip the queens' wings, and cut out cells to prevent swarming. Now, I found in going through them at different times that they had the queen balled, and, later on, the colony would be queenless. They are the Italians.

Caldwell, Ida., June 21.

CECIL LEPPIN.

[We hardly know what should cause your bees to ball the queen unless the disturbance in opening the hive in cutting out the cells should cause them to become dissatisfied. Sometimes when the normal conditions of a colony are disturbed the bees will ball their queen, apparently thinking she is to blame for it. It is not an uncommon occurrence, when a swarm tries to leave with a clipped queen, for the bees to ball and kill her on the second or third fruitless attempt. Possibly this is the real cause of your trouble.—E.]

Conversations with Doolittle

At Borodino, New York.

SECTIONS, WHEN PUT ON, ETC.

"How many sections should be put on a colony? How may one know the right time to put them on so that he may secure the best results? I do not have the flow of nectar from clover and basswood that some do; but from buckwheat and fall flowers the yield is often fine."

"After many experiments I have come to the conclusion that sixty pounds capacity is about right for a good strong colony, say one having from 45,000 to 50,000 bees when worked for section honey, and 100 pounds when worked for extracted honey, exclusive of the brood-frames or the hive proper. In putting on sections it is always best, where it can possibly be done, to have a part of those first put on filled with comb left over from the previous season. This starts the bees at once to storing above, at the commencement of the honey harvest, whether from clover, basswood, buckwheat, or fall flowers. Don't wait till your bees swarm before putting on the sections, as some do, fearing that the sections will retard the swarming, for bees often refuse to swarm, and hang idle on the hive all summer, where the season is such that they are anxious for storing a copious flow at the start. Always keep an eye to business, never forgetting that a thing done at the right time brings success.

"In order to take advantage of the very first of any nectar flow the sections should be all in readiness in the supers before that harvest is likely to arrive. The practical, successful apiarist does all of this preparatory work during the winter months, although he does not yet know how his bees will winter, or what the harvest will be. Having every thing in readiness before the active season opens will pay much the best.

"I have to confess that, to know *just* when to put the supers on the hives is often difficult, especially where there is an early flow; for if put on too early, brood-rearing is often materially retarded; and if put on when there is no honey coming in, although there may be plenty of bees so that the brood does not suffer, these bees, not having any thing else to do, will often go into the sections. Apparently bent on mischief, they will then amuse themselves in gnawing down the foundation starters, or in daubing every thing with propolis. This causes a delay in entering the sections for work, when the harvest does arrive.

"The old rule of half a century ago was to put the sections on when the first blossoms from white clover appeared; and for

those days of box hives perhaps this was as good advice as any; but for those who handle their bees and know their condition in each hive, none will be willing to adopt such a rule. Let us see how it would work: A few years ago a prominent apiarist wrote me about the middle of June that his bees were not in the shape that he wished them, saying, 'About a third of them will be ready to take advantage of the clover; a third more, with the first third, will be ready for the basswood, while the remaining third will not be strong enough to work to advantage on any thing but buckwheat and fall flowers.' Now, it will be seen easily what a waste it would have been to put the sections on all those bees according to the advice given by our grandfathers. But we will suppose that the bees are strong enough to enter the sections, and clover, basswood, and buckwheat, or whatever gives the surplus honey in our locality, is commencing to bloom—shall we put them on? No, not until nectar is coming in. One year, in which my average yield from the whole apiary was over one hundred pounds of section honey from each old colony in the spring, the sections were not put on until from July 12 to 15. Previous to that time the bees were living only from hand to mouth, being so short of honey that a week of rainy weather would have starved them if I had not come to the rescue by feeding.

"When every thing is in readiness, 100 hives can be supplied with surplus arrangements so quickly that no time need be lost after the flowers begin to yield nectar. In order to ascertain whether nectar is yielding, go along the entrances of the strongest colonies each day, and, by the actions of the bees, tell whether they are gathering honey or not. If you are not sure that you can tell in this way, it is a good plan to wait before putting on the sections until you find little bits of comb started, or until nectar glistens in the cells lengthened along the top-bars of the brood-frames. When you see this, and the colonies are strong enough to enter the sections, don't delay putting the supers on such hives a single day; for if you do you will be losing honey, for the bees may begin to crowd the queen, and thus be slow in working in the sections all the rest of the season. The first nectar, as nearly as possible, should go in the supers; and if we can so arrange it that the supers are put on at just the right time, nine colonies out of ten will take advantage of them if the first are supplied with bait sections of comb as at the outset."

General Correspondence

THE POSSIBILITIES OF BEEKEEPING AS A SIDE LINE

BY N. FRED GARDINER

[The following article is the substance of a paper read at the last convention of the Oklahoma Beekeepers' Association by Mr. Gardiner. This explains the quotations made from the various books, etc. As it deals with the possibilities of bees as a side line or recreation, we are glad to reproduce it here.—Ed.]

It has been stated by the publishers of one of our leading bee-journals that they believe that fully 90 per cent of their readers are what could be termed "back-lotters"—that is, they keep bees on a back lot or in their dooryards as a side line while they follow some other business or profession. This is likely true of beekeeping in general.

Since the greatest number of bees are kept as a side line, the more astonishing, then, are the yields of honey and wax and the value of the same. I have found it very difficult to obtain any figures on the product; in fact, I could get none whatever from the 1910 census. The 1900 census gives the honey production in the United States as 61,196,160 pounds. Our authorities think that these figures are exceeded by the comb honey alone produced, and likely these figures should have been doubled at least. As an illustration of how unreliable these census figures must be, it will be necessary only to state that it has been the practice of the census bureau to list only the bees on farms or tracts as large as four acres. Therefore we sideliners haven't done much to raise the figures in the census reports. Why, don't you know I raised 1500 pounds this season myself? Then if we double the figures of the 1900 census report we have over 61,000 tons, which is not likely too large.

One of the most astonishing features of this is, that this great volume of sweetness was not piled up by a steam-shovel, but by a small insect, a small part of a drop at a time under the direction of *us sideliners*—90 per cent of it any way.

But we must not get a wrong impression of what this side line means. We must not think that, because of the term, we are to secure a few hives of bees and set them over against the line fence or in some out-of-the-way corner and visit them only to replenish our depleted larder or secure figures for the census enumerator.

I believe I can say without contradiction that there are but two conditions under which beekeeping can be counted a success. One is where it is followed by a specialist for the "almighty dollar," and the other by the side-liner from pure love of the work.

However, it is not infrequent that the side-liner allows the object of his affection to grow so that he finds that he has become a specialist.

The words of Dr. Bohrer before the 1909 convention of the National Beekeepers' Association I consider good wisdom for those contemplating becoming a sideler or possibly a specialist. Dr. B. says in part, "I have made it a custom for several years, especially since foul brood has come into the country, to discourage all persons who know nothing about the management of honeybees. When they talk to me about buying them I tell them that, unless they study standard works on the habits and management of the honeybee, and read the bee-journals, they can buy decidedly more honey than they will ever get out of bees by owning them."

For my part I have frequently been instrumental in securing for interested friends bees in modern hives, or have assisted in transferring from boxes and logs and gums into modern hives, and then have watched their interest lag and have seen the bees left to utter neglect.

On the other hand, here are some inspiring words from Mrs. Comstock, in the A B C and X Y Z of Bee Culture, on beekeeping for women. I quote from this chapter the following:

"I should put first of all, and as embracing all other reasons, that beekeeping may be an interesting avocation which may be carried on coincidentally with other employments; it is an interesting study in natural history; it cultivates calmness in spirit; self-control and patience; it is 'a heap' of fun; incidentally it may supply the home table with a real luxury; and it may add a very considerable amount to the woman's spending money. It may also be carried on as a regular business and be made to support a family.

"But it is as an avocation that I am especially interested in the apiary. Any woman who keeps house needs an avocation which shall take her mind and attention completely off her household cares at times.

"Beekeeping is one of the best of these life-saving, nerve-healing avocations; it takes the mind from household cares as completely as would a trip to Europe, for one can not work with bees and think of any thing else. Some of the attributes which make beekeeping an interesting avocation I will mention: First of all, the bees are such wonderful little creatures, and so far beyond our comprehension, that they have for us always the fascination of an

unsolved problem. I never pass our hives without mentally asking, 'Well, you dear little rascals, what will you do next?' The bees are of particular interest to women for several reasons. If she likes good house-keeping, then the bee is a model; if she likes a woman of business, again is the bee a shining light; if she is interested in the care of the young, then is the bee nurse an example of perfection; if she believes in the political rights of woman, she will find the highest feminine political wisdom in the constitution of the bee commune. In fact, it is only as a wife that the bee is a little too casual to pose as an ideal, although as a widow she is certainly remarkable and perhaps even notorious. Another phase which makes beekeeping a pleasing avocation for women is that much of the work is interesting and attractive. I never sit down to the job of folding sections and putting in starters without experiencing joy at the prettiness of the work. And if there is any higher artistic happiness than comes from cleaning up a section holding a pound of well-capped amber honey and putting the same in a dainty carton for market, then I have never experienced it.

"As a means of cultivating calmness, patience, and self-control, the bee is a well-recognized factor. Bees can be, and often are, profoundly exasperating, and yet how worse than futile it is to evince that exasperation by word or movement! No creature reacts quicker against irritation than does the bee. She can not be kicked nor spanked; and if we smoke her too much, we ourselves are the loser. There is only one way to manage exasperation with bees, and that is to control it, and this makes the apiary a means of grace."

While these words are a message of a woman to women, they are words of wisdom to any who contemplate getting bees.

One of the most interesting things in connection with the bee is its adaptability to so many different climatic conditions. Apparently being able to adapt itself to any locality that will furnish the necessary nectar-producing plants, C. P. Gillette, of the Colorado Agricultural College, in a lantern lecture before the Colorado Beekeepers' Association, said in part:

"The honeybee is, with the possible exception of the silkworm, the most important commercial insect. Although the bee is handled and cared for throughout its life by man, it can hardly be considered a domesticated animal. A colony of bees in the apiary differs from a colony of wild bees in a bee-tree or a ledge of rocks only because of the difference in the home they dwell in. The insect intelligence is not capable of

being taught as one might teach a dog or a horse.

"Bees do wonderful things to provide for their home needs and the care of the young; but they do all from instinct, and not from education received from others after they are grown.

"There are a great many fossils of insects found in rocks of the earth's crust that must have been formed at a time long before man inhabited the earth. It is altogether probable that our honeybee was present upon the earth gathering nectar and pollen, cross-fertilizing plants, and caring for its home, before the earth was in a condition to be inhabited by human beings. We are also interested in the honeybee because it stands at the head of its class, thus rather ranking in the insect world with man in the realm of higher animal life."

While the bee is of great commercial importance to man as a gatherer of one of the choicest sweets that we have upon our tables, it probably is of even greater benefit in the cross-fertilization of the flowers of our agricultural fruits and plants in so causing larger crops.

Mr. John Fields, editor of the *Oklahoma Farm Journal*, and able exponent of alfalfa and Bermuda grass, says, "We feel that an extension of the bee industry would help extend the acreage of alfalfa, and that everybody would be all the happier as a result."

Well, I am not sure whether I am in the big field of beekeeping as a side line or not, but will call your attention to the words of Mr. Doolittle as to the necessary requisites for a successful beekeeper.

"Like all other branches of rural economy it demands care and experience; and those who are conscious of a strong disposition to procrastinate and neglect will do well to let bees alone unless they hope by their systematic industry to reform evil habits which are well nigh incurable. If you are to succeed you must be so absorbed in it that you will think bees, talk bees, dream bees, and never tire of their study. You must be one who anticipates their every want, and one who will do the right thing at the right time."

Root's A B C of Bee Culture has this to say about bees as a side line:

"The keeping of bees is generally more successfully carried on in connection with some other business. Many a professional man desires some sort of light recreation, and a few bees will afford him just the diversion he needs. Farmers, fruit-growers, or horticulturists, can keep from 50 to 100 colonies without greatly interfering with

other work; and nearly every one can keep a few colonies in his back yard. Ten or twenty colonies will yield almost a certain return—a much larger revenue, per colony, than ten times that number.”

With the knowledge that from ten to twenty colonies can usually be handled successfully, and at a good profit, the beginner will naturally desire to try his hand at it. How shall he make his start? Whenever possible, buy bees in your own vicinity. Regarding the price, a strong colony of Italian bees, with tested queen, in a new Dovetailed hive, or any modern hive, in fact, might be worth \$10.00. This ordinarily would be considered the outside price. Ordinarily, bees that are hybrids or blacks, in movable-frame hives, second-hand, sell from \$3.00 to \$5.00 per stock, including the hive. If there are no modern beekeepers in the vicinity, one may have to purchase a box hive or two with the combs all built solid into the hive. The price of these, if they are blacks and hybrids, generally is from \$1.00 to \$3.00. So far as my knowledge goes, there are not many bees in Oklahoma of the kind and condition of these last mentioned, and I hope there will never be many.

The same author just quoted has the following to say under profits of bees: “On the average, perhaps, in the Northern States, in what is known as the rain-belt, one might expect to get anywhere from 25 to 50 lbs. of comb honey, and perhaps 25 to 50 per cent more of extracted. There will be some seasons when he might secure as much as 100 lbs. on an average, and occasionally seasons when there would be neither comb nor extracted, and the bees would require to be fed. Taking one year with another, a small beekeeper ought to average about 35 lbs. of comb honey, on a conservative estimate, providing he has reasonable skill and love for the business.”

The author then makes an estimate of the expenses, and places the net profit at four to four and a half dollars per colony. Continuing he says:

“The question of whether one should keep few or many bees will depend upon many conditions; the principal one will be the ability of the man. Many a person can handle a few chickens, and get good results; but when he runs the number into the hundreds he meets with failure and disappointment. Some of our friends have done remarkably well with a few colonies; but **when they attempted to double or treble the number they entered into a business proposition that proved rather too much for them.**

“A good many, on account of a lack of experience or of business ability, not under-

standing their own limitations and those of their localities, will plunge into beekeeping too deeply and meet with disaster. There are undoubtedly some people who can keep more bees by scattering them in outyards, and if they have the requisite training and business ability they can make more money. But where we find one person who can manage 500 colonies or more successfully, there will be dozens of others who can not go beyond the 200 or 300 mark. The same rule applies to any business.”

As for myself, I began beekeeping when a mere boy, and have kept them as a side line, while a farmer boy, schoolteacher, and railway postal clerk. Their principal attraction for me seems to have been occasioned by my becoming inoculated with the germ of bee fever, which must have been quite early, for my parents tell me that when a mere infant I was found with a stick poking into a hive, undoubtedly making foul-brood inspection. As with many others, my liking for the frisky little insect is such that I would persist in keeping them about me if their presence produced but little or no honey for home use and the market. It may be pure luck, but there has never been a season when I had bees that I did not secure enough surplus to pay interest on the investment.

Although I made an early beginning with bee investigation, there were none for my study when I became old enough to understand them. When I became old enough to read understandingly I was fortunate in securing through a friend some of the most up-to-date books and periodicals on the honeybee. Although I could not then remember ever having seen a bee, the articles so excited my interest that I was not long in securing my first colony, since when I have worked out my own course with the aid of the ample literature that is now available, and without the aid of any one who knew more of the little creatures than I did to give me personal instruction.

My average in 1909 was 91 pounds, spring count, and 95 pounds in 1910, and doubled my stock in each case. This past season the flow ended July 23. This seems to be a good yield for the season; but one of my neighbors, a boy of 16, reports a yield of something like 150 pounds per colony.

The same season that I purchased my first colony I found a bee-tree of black bees. This at once put me into active practice in cutting the tree, transferring the comb, and changing the black queen for an Italian. My stock since then has steadily increased; but I have never owned more than about 30 colonies at a time. While employed as a

schoolteacher my bees did not secure the attention they required; for while the honey was very acceptable on the table my folks did not have the same enthusiasm that I did in caring for the bees, and I finally disposed of them for that reason.

Soon after establishing a home of my own I remembered my former pets and invested anew. As my better half takes almost as much pleasure as I have in their care, my bees now receive pretty good attention.

Geary, Okla.

THE RESULT OF EIGHT SUMMERS' EXPERIENCE

BY ROSCOE F. WINSON

In the spring of 1905 I purchased a colony of bees of a neighbor, and thus commenced a business the managing and working of which I like better than any other rural occupation now open to young men. My first summer's experience came when I was not quite fourteen. Ever since I can remember honey has had a great attraction for me, so it was but natural that my taste should be satisfied.

About the first of May my first colony was moved home and placed on a stand in the yard. When the bees became strong enough, sections were placed on the hive and watch was kept for swarms. During that summer the total crop of honey was about 25 pounds. The bees were increased through two swarms; but the parent colony died of queenlessness, leaving me two to winter.

During the season of 1906 the two colonies that wintered increased to four or five. During those years school duties occupied most of my time, so beekeeping was simply a side line.

The purchase of a three-frame nucleus of Italian bees and some new Danzenbaker hives completed the great deals for the summer of 1908. The cost of these Italians, including the express charges on them, was about five dollars. At that time I expected the "Goldens" to be wonderful; but they were far from it, because it was well into the next summer's clover flow before they paid their expenses. The purchase of good queens (which I made later) would have been the wisest course.

There was not very much done to stir any beginner with enthusiasm except chasing swarms to the woods in the period of the honey-flows of 1909, '10, and '11. I bought a few queens in these years for the weaker colonies, but no wholesale requeening was attempted. Several box hives were bought

to experiment on, but in most cases they proved rather poor material.

In 1909 a man who wished to go out of the business sold me his entire stock of eight-frame hives with three colonies of bees. Although the bees paid for themselves the first season, the eight-frame hives have been a bother ever since, and I still have them in storage, waiting to be converted into ten-frame. My books showed the following summer something like 17 colonies and a total crop of about 636 sections.

I wish especially to relate my experience for the summer of 1912 and the result of fighting European foul brood. I think that when the honey-flow commenced in the latter part of May I had about 38 colonies of bees. Eleven were in box hives, 15 in Danzenbaker, and the remainder in eight and ten frame standard hives. Let me add here the fact that the box hives in the yard were purchased the fall before, entirely for the purpose of speculation. Last September I purchased fifty empty hives for the expected increase, and planned to receive enough swarms from these colonies to fill all hives. Early in the spring the bees appeared quite healthy, and I had great hopes of a good and prosperous year. As time went along and fruit bloom came and neared its close I noticed that some of the box hives which had been strong in the spring had not increased in strength, but were, on the contrary, decreasing. I might mention here an example of good stock, and of what it means to have Italian blood in the yard. One hive in the yard was headed by an Italian queen from a firm in Indiana, and had always proved fairly good. This spring, when natural pollen began to come in quite freely, this particular colony was rather weak, while I had at least two or three colonies in box hives which were at least double in strength. Now for the point: As the season advanced, the Italians gained steadily on the blacks in the box hives. The box hives seemed to be losing bees every day. There seemed to be something the matter, for bees in their natural state never acted like that before. The only way to find out was to get at some of the comb in the boxes. After the bees were drummed out and placed on a set of combs I examined the brood-combs. They looked decidedly queer. The next day I mailed a small piece of comb to the Department of Agriculture at Washington, and in a few days received notice that European foul brood was the disease present. At once all of the hives were inspected, and every colony was found to be diseased except the above-mentioned colony of Italians and a colony of Banat-Italians. Five out of seven were diseased in an out-

yard at the other end of town, so I had only four colonies to depend on for a crop. This happened about the first of June.

Before many days passed I had a visit from Mr. Chas. Stewart, one of the New York State bee inspectors. He looked at the worst ones and advised me to clean up by the Alexander method on the frame hives and the shaking plan for the box hives. From thence I waged war on foul brood. It might do to mention here that the Italian colony was working in 56 sections when the inspector arrived. The foundation was rather late in arriving from the factory, so it was well into the clover flow before any actual move was taken to drum out the bees from the box hives. As soon as the foundation arrived, business commenced. Three box hives that were grouped close together were run out by the forcing-box method, and dumped in front of a ten-frame hive filled with full sheets of foundation, and provided with one super of 28 boxes. All box hives in the yard were treated in this fashion, and the hives with what brood and bees were left in them were piled up one on another at a different location in the yard. In 21 days the 11 boxes were shaken again, and gave me another colony. All together there were 5 colonies from 11 box hives. All these shaken colonies averaged about 75 lbs. of clover honey per hive. July 25 these colonies were supplied with good Italian queens in place of the black ones. Owing to considerable outside work at this period I did not treat every hive with frames by the Alexander method. The bees in the outyard that were given the plan turned out well. But as the season advanced toward midsummer I did not dare to take a queen out and leave the hive queenless for 27 days, because I feared a heavy winter loss. So during the month of August every colony that had not had treatment for foul brood was requeened. There were in August seven colonies diseased badly. This season I shall watch these very carefully and see if the Italians cure the disease alone. I know that this method will not cure the disease to any extent, but the good stock will help to keep the disease under control.

To return to the one Italian colony: Its total number of sections last season was 190. It seems almost wonderful to think of a colony producing this amount with foul brood on every hand. The two clean swarms in the outyard produced 274 finished sections besides two sets of combs. Both of these were, by the way, worked on the Doolittle plan for comb honey, while the one in the home yard did not even offer to swarm until the bees started supersedure cells later in the summer. So by the buckwheat flow

the total number of colonies in the yard numbered 32, and each of these had a fairly good Italian queen.

When I began to take care of bees, and for a few years after, I thought it was fine fun to watch for swarms and then chase the little fellows around in the tree-tops in order to hive them. But in the last season or two experience made me change my mind. It was the custom in most cases to lose a few swarms each summer; however, by the "shaking" method this trouble took care of itself; and the best part of it was that the colonies so treated made so much more honey in return for the extra thought. By the Doolittle plan for comb honey I can receive three and four times as much as by the older methods.

For a number of years I have been using the Alexander plan for building up weak colonies. In fact, I have never lost a colony by it yet. This is one of the many good plans that one comes across by reading the bee journals and keeping close up with the times.

A word to the beginner might be helpful. Some in the first stages of bee fever do not use full sheets of foundation in both sections and frames. After one has tried full sheets, no one can hire him to go back to starters again. The section boxes which I use are split one side and filled with a full sheet of extra-thin super foundation. The sheets are waxed in on three sides in accordance with the Yoder plan described April 1, 1908, p. 431. The split of the section comes at the top and leaves a bee space at the lower edge of the sheet. Sections filled with honey after they have been prepared in the above manner seldom break in transit.

My home yard is about three-fourths of a mile from the western shore of Seneca Lake. Woods and vineyards stretch along the shore in both directions, and sometimes as far as half a mile inland; so the limit of forage in the lake region forces the bees to go in other directions for honey-producing plants. Our main crop here is derived from clover and raspberry, while buckwheat sometimes yields a small surplus in a good season. However, we count ourselves lucky if the bees gather enough of that for their winter stores. But, on the other hand, five or seven miles to the west, and sometimes even north, numbers of acres of buckwheat bloom each year, and from all appearances the clover has equal strength; therefore you see at once why I favor outyards. The only outyard which I have at present occupied with bees is but a mile and a quarter from the home yard, and in reality consists of a small overflow from the latter.

Dundee, N. Y.



Fifty colonies kept in the center of a village.

BEEKEEPING AS A RECREATION AND SIDE LINE

BY MRS. G. W. BARGE

We do not keep bees entirely for recreation; but we do keep them as a side line, because Mr. Barge is fond of caring for them, and has had bees more or less for about twenty years. His real work is in the cold-storage business; but as that does not take all his time except during two months in the spring, when storing eggs, he spends his leisure time in caring for bees.

We have at present about 250 colonies, but have always had the greater part of them out on shares until this summer. The man who has had them because of old age and poor health became unable to care for them any longer, so Mr. Barge hired a man to help, and will take care of all of them himself. He usually keeps about fifty or sixty colonies here at home; and as the queens are all clipped we are not troubled by swarms clustering in the trees as we were before this was done. When a swarm issues, Mr. Barge catches the queen and moves the old hive away, putting a new one in the same place. The bees soon go into it; and if there is no one here to attend to them, of course they go back to the old hive.

Our house is situated nearly in the center of the village; but as the grounds are

large, being three lots, $66\frac{1}{2}$ by 120 feet, the bees do not bother any one much. You can see from one of these pictures that they are gentle, as the little boy sitting on one of the hives was a little fellow from Milwaukee who had never seen a bee until he came to visit us; but as he is very fond of honey he was quite interested in them. He was only three years old at that time, but walked around among the hives without even a hat on, and did not seem to fear them at all. He is now six years old, just as fond of honey; and last summer when he was visiting us again his aunt addressed Mr. Barge as Mr. B., and he said, "Mr. B., from the bee country;" and since then he often calls him that.

At present all the yards, of which there are two besides this, one a mile north of town on our farm and the other a mile south, are run entirely for extracted honey, as it does not take so much time to do this; and the last few years the honey has not come in fast enough to make a success of comb honey, as there were too many unfinished sections.

We find that people, especially farmers, are using honey more and more, and we do not have any trouble in disposing of the greater part of the crop right at home. Several customers among nearby farmers take three sixty-pound cans each year for their family use. They do not consider it a



Mr. G. W. Barge, Union Center, Wis., who keeps about 250 colonies in addition to managing a cold-storage business.

luxury now as much as formerly, and nearly all children are fond of it—at least, judging by the number of them who come here to get what they want to eat at extracting time. One of these views shows the honey-house and the hives between that and the cold-storage building which faces on the street, so these are in quite a sheltered place. The trees shown in this picture are mostly apple and plum, with one basswood. The other view is on the other side of the house, and shows the row of hives along the arbor-vitæ hedge which divides the garden, barn, and chicken-yard from the lawn. There are about a dozen basswood trees in the yard.

Union Center, Wis.

STUDYING A SWARM FOR RECREATION

Bees as Vibrating Molecules

BY EDWARD F. BIGELOW

Is there any fact in all the realm of nature more marvelous than the phenomenon expressed in the words, "the vibration of the molecules," of which we all see some of the results while none can understand the cause? We know that a mass apparently solid is not really solid, but that the molecules composing it are in constant and rapid vibration. We can soften the body, we

can lessen its solidity; we can, perhaps, liquefy it, and of it form a larger body mass by forcing the molecules further apart and giving them a wider are of vibration. The blacksmith is familiar with this fact, though he may not stop to reason about it, nor even to contemplate the wonderful phenomenon that takes place in his forge or under his hand. When he wishes to enlarge a band of iron, as, for example, a tire for a wheel, he heats it, slips the hot band around the wheel, cools it by a stream of water, and so binds it firmly in place. A similar phenomenon may be observed on the railroad tracks, where it is necessary to leave a little space between the ends of the rails to allow for their lengthening under the hot sun of a summer day. Every rail is a little longer on a summer afternoon than it is on a winter noon. Heat expands and cold contracts, and only a moment's thought will assure us that, if a body is larger when hot than it is when cold, it must be of such composition that we may term it "loose," and that the molecules will fly apart under the application of a high temperature. We seldom stop to think that a stone, a piece of iron, a piece of metal, or even a piece of wood, is really made up of an almost infinite number of infinitely small particles held together by a force that, for lack of definite knowledge, we call cohesion.

So when I see the small swiftly moving

forms of insect life darting hither and thither as at the swarming of the honeybees I ask, "How is it that they do not bump against one another?" But wonderful as is the fact that they can fly so swiftly and yet each in its own undisturbed and undisturbing path, how much more wonderful is it that, when they are massed together, they can freely move in and out, and that the whole mass, though it be a foot in diameter, is not only supported as a single body by the clinging legs, but any one bee in that mass may go out or go in, may change its position at will, and do so apparently without disturbing any other bee in the cluster! Here are visible vibrations of an astonishing mass of mammoth living "atomies" that compose the compact cluster that we know as a colony. We think it a wonderful feat when we see athletes clinging together in some picturesque form; but how much more wonderful would

it be if they could for hours retain that form, and if each could freely change his position and move freely among the others! They may build up, they may cling together for a minute in the form of a pyramid, of a cross or a harp, but every one within that mass must keep his place and remain motionless. But bees can form a mass of variable form, sometimes resembling the letter W, again the letter M, but more frequently the letter V; and that this mass has its constituent particles of insect life perfectly and actively interchangeable is the amazing fact. I do not recall that in any book or magazine pertaining to bees that I have seen, this astonishing fact is mentioned; yet to me there are few things pertaining to honeybees so astounding. Though we may not be able to explain how it is done, to see the thing actually done is more than



Spending a comfortable afternoon with plenty of company.

interesting. For that purpose, go to the swarm, without glove and veil, approach so near that each member of the group is singly visible, then here and there gently separate a little mass; note how they cling, note how freely they move one over another; how, perhaps, a dozen supporting a hundred below can freely travel over the dozens that are above, and at the same time each of the hundred below and each of the hundred above is traveling swiftly in and out of the cluster, with no apparent notice from its associates. Here is a new field for a study that should be done not so much in the hope of solving the problem as to witness the astonishing performance. Remove a small mass from the cluster, hold it on the end of your finger and see how the bees cling together.

The accompanying photographs show the



Finding out how the "molecules" of the swarm body move freely about.

writer investigating the movements, although in one of the two poses his bald head is perhaps more conspicuous than the colony of bees. I suggest to the veteran beekeeper that, if he wants to interest boys and girls in bees, he may make the subject far more attractive if he will tell them of these movements with special stress on the individual independence of each constituent insect. That will be better than to lay so much stress on the fact that they produce something that may be sold or is good to eat. Here is food for thought. The brain and heart are more valuable than the stomach or the pocketbook.

Arcadia, Sound Beach, Ct.

MOVING 250 COLONIES 210 MILES

BY J. L. BYER

Mention was made in the June 1st GLEANINGS about my plans to move a large apiary some 200 miles from my home; and in view of the fact that a number have written me asking how we got along, I am prompted to give a write-up of the trip, not with the intention of being able to say any thing original on the subject of moving bees, but rather with the thought that perhaps somebody may have similar work to do in the near future, and may be able to get some

slight help by reading about the experiences that naturally occur on a trip of this kind.

Briefly, the problem before us was something like this: 250 colonies of bees with about 500 supers of extracting-combs, storage-tanks, barrels, extractor, uncapping-cans, etc., situated 200 miles from home, all to be prepared for moving, hauled three miles to the station, for a trip of 260 miles by rail, and, in the end, to be hauled a mile and placed on stands in their new location.

The first thing to do was to formulate plans to carry out the work successfully. It is needless to say, considerable study was spent on the matter for a few weeks prior to the trip. Many of the bottom-boards were none too solid, so I had a number made at home and shipped down a week before I went myself with a man to help me. Then the question of ventilation had to be decided upon, as *ventilation* and *water* are the two prime requisites in order to insure good results in moving bees by ear lots in warm weather. As I had 90 screens on hand from last year's trip I utilized them; but for the rest I decided to use cotton on half-depth supers. Screens and cotton were shipped ahead with the bottom-boards.

We left home on the 14th of May, arriving at our destination about four in the afternoon.

A hasty glance was taken over the bees. I had not seen them since early last September. Then we started at once to nail on bottom-boards. We had crating-staples with us, but they did not make things secure enough to suit me, so we used four nails in each bottom-board, nailing right up into the hives—the very thin nails called “box nails” being used for this purpose. This kept us going all day, and it was the heaviest work of the job stooping over and turning the lives up—an awkward position that becomes tiresome after one has been at it for a long while. The next day it rained all the time; but we were not hindered at all, as we fastened the cotton on the supers, strips sent down with the screens being used for this purpose. The next day, Saturday, my assistant was put to work fastening on the screens and supers covered with cotton, while I helped a good farmer friend to prepare a rack to haul the supers to the station, and we started at the work at once.

Fig. 1 shows the rack as we prepared it for moving supers, and, needless to say, it was ideal for the purpose. This wagon also took a load of bees at night, 36 hives going in one tier. The supers were packed full of comb, a number then being left empty (full supers do not give any chance for the combs to drop out). With this big rack we

were able to haul nearly all the supplies in three loads, and it surely saved a lot of time and expense, as the stuff was more bulky than heavy, and it was a question of how much we could get on, not how much could be drawn. An obliging railway agent had ordered cars for me two days before I needed them, so we started to load the supplies on Saturday, intending, if all went well, to load the bees Monday evening. On Saturday evening, in company with my good farmer friend Mr. H. Kendrick, I asked a number of farmers to help me move the bees; and, although none were familiar with bees, every man I asked consented at once to help me. As there were no spring wagons in the community, I decided to get them to bring their hayracks, first placing rails or scantling around the sides about a foot higher than the sides, and then placing hay on the rack about 18 inches deep. Of course, when hives were on the hay it would settle down lower than the sides fastened on the rack. This arrangement proved first-class, and I really believe it is better than most spring wagons.

Two cars were procured—one an ordinary stock-car, and the other a double-decked one. All supplies were put above in the upper deck; and, while the plan worked well to save space, the cramped position one



A closer examination.



A swarm of bees can break down a tree (if the tree isn't too big and the swarm is large enough).

has to work in while loading will certainly put a crimp in his spine as quickly as any thing he can go at. I know from experience all about that part of it. Every thing was firmly fastened in this upper deck, as one always has to prepare for rough usage, even if he does not happen to get it.

All of this work was done by Monday at 4 o'clock P. M., and in the evening the real work of moving the bees was to start. Farmers were asked to be there by 7 P. M.; and before that hour a few of them had arrived. Strips of lath were all ready, one at each hive, so that, as soon as the bees stopped flying, the entrances could be closed. An inch nail at each end was used, and it was a short job to close entrances, one man doing it as fast as the loading was done. Wagons were brought as near the yard as possible, and I insisted that teams be removed while loading, a plan I have always followed when having help to move bees. Mr. Kendrick took charge of one wagon while I mounted another; and as the helpers carried the bees to us, we put them in place. Eight wagons took the whole outfit; and so nicely did every thing work that in less than an hour from starting we had the lot—241 colonies, to be exact—all on wagons ready for moving.

Then the trip started; and I regret that,

owing to its being dark, I could get no picture of the procession, as I never expect to see just the same scene again. The road to the station was fairly good, but a little rough, as most of it is on solid rock. I walked back and forward all the time from one wagon to another, but all arrived safely at the cars about 9:30. I stated that all supplies were put in that upper deck; but I forgot to say that a tier of full-depth supers filled with combs—about 160 of them—were placed on the bottom of the single-deck car, and then the bees were placed on them. They rode perfectly, thanks to R. F. Holtermann for the suggestion before I left home.

Just a word about how the bees were placed in the cars and the

provision made for watering them. At each end of the car about six inches of hay was packed between the first row of hives and the end; and as we loaded from both ends of the cars any space left at the center was also packed with hay. This is a splendid "buffer," and takes nearly all of the jolt from the hives. Of course the hives were loaded with the ends of the frames facing the ends of the cars. Last year I used 60-pound cans for carrying water, and ran out of this necessary article while on the road. It was a nerve-racking business getting water along the road, so no more of that for me on another trip. This time 60-gallon barrels were prepared by having a hole 10 inches in diameter cut in one end. These barrels were filled at the station pump, and, with lots of help, were lifted into the car after every thing else was in, standing right at the doorway. With a dipper one could reach any hive in the car quite easily, although a large veterinary's syringe, holding about a pint, had been provided for the double-deck car. It was not necessary, though, as even in that rather limited space a dipper worked to perfection. With a hole in the center of the barrel there was no splashing out of the water—in fact, I sat on top of the barrel on a cushion most of the time while on the trip.

The bees were all loaded without a single mishap about 10 P. M., and, needless to say, we were tired, even if not aware of it at the time.

No freight went from Bellamy to Smith's Falls till the next evening at 7, so we expected a weary wait all the next day before going that 17 miles that lay between us and the main line. But again fortune favored us; for when the bees were about loaded, my good friend the agent already referred to came around to the car and told me that he had been busy on the wire with the train despatcher and other officials, and they had ordered the fast express that went up at 7 A. M. to stop and pick us up. My suit case and the "grub" for the trip were back at New Dublin, and that meant that I must go back to get them that night. I went back with one of the teams, stayed there over night—i. e., what little of the night was left—arose at 4 A. M., and walked to the station, carrying my suitcase and box of provisions, weighing about ten pounds, I suppose, but really seeming more like 50 before I got there.

Sharp at 7 the next morning we pulled out on the express, and were soon in the yards at Smith's Falls. I promptly looked up the yardmaster, and he at once consented to place my cars on a switch where they would not be touched till ready to leave. Two trains left before noon; but as they were both to do some shunting along the way he advised me to wait for the fast freight that left at 1 o'clock. His advice proved good, as we passed the other freights before getting to the next divisional run at 7 that night. The cars were next to the engine—a very important item, as there the bees get handled much easier than back at the end of trains of 18 or 20 hundred tonnage, as all trains are on that line.

We pulled in at the first divisional point at 7, and the engineer insisted on placing those cars himself, and not allowing the yard engines to touch them. Forty miles from that line we had to leave the main line and go over 100 miles on a new line completed only last fall, and I learned that no train went up that branch line till one



FIG. 1.—A load of supers filled with combs on the way to the depot.

left our station at 6 the next morning. The night was cool; and as the bees were quiet we went with the agent at that place for the night, arranging for a call in the morning. The agent formerly lived near us, and it was another pleasant surprise to find him there and to have him help us. At 5 the next morning a messenger came to the house and asked if the man with the bees was there, and we were told that the train would be ready about 6:30.

After another pleasant trip that day we arrived at our destination at 7 that evening in a pouring rain, so the bees were not unloaded till the next day. The morning was cool and cloudy, so from start to finish we had nothing but the best of luck in every way. The engineers on both long runs were splendid fellows; and although I was more than willing to make it worth their while to handle the cars gently, they did not look for it like some who are always watching for tips. However, it pays to start on a trip like this with a dozen or so quarters in your pocket for judicious use along the way. As stated, we had our lunch with us; and although finger-bowls and table-napkins were not in evidence, we managed all right.

Just a word as to how the cotton served us for ventilation purposes. In my opinion it is away ahead of screens in every way; for, strange as it may seem, it actually gives more ventilation than the screens, and the bees are quieter. With the wire cloth they see too much light, and are all the time flying to the top and trying to get out, while with cotton they rarely fly up at all. As to



FIG. 2.—The apiary before the hives were prepared for shipment.

water, we struck fairly cool and moist weather, and did not use half of the supply, but that was better than not having half enough. Not a comb was broken nor a pint of bees lost, neither did any larvæ die, so far as we could see.

Picture number 2 shows part of the yard before the bees were prepared for shipment.

Fig. 3 shows the bees in their new location, four rows with 60 in each row. To the north of the two houses are 120 colonies that wintered on the spot—a few of the hives being seen in the distance. Every hive rests on broken rocks taken from ledge that shows in the distance.

Was I tired after the trip? Yes; and yet after all I can not say but that the work was pleasant, owing to every thing going so nicely; and while I am not looking for a steady job in moving bees by train, nevertheless I would not view with any great alarm the prospect of moving another car-load some time. It means a lot of careful planning and always being *sure* that all is right. In this job, above all others, it does not pay to trust too much to luck. With all our careful survey of hives to see that there were no holes for bees to escape, now and then a wormhole or other small opening would let out a bee or two. A roll of cotton batting at each wagon while loading, and, later on, in each car, was a ready and handy way of stopping up such leaks, and I do not think that a man outside of my assistant and myself was stung during all the work in the yard and at the cars.

Mt. Joy, Ont., Canada.

AUSTRALIAN NOTES

Kerosene-Cans Prohibited for Putting up Honey

BY F. R. BEUHNE

In endorsing the statement of Mr. W. Barnes, p. 705, Nov. 1, made in refutation of one by Mr. M. Shallard, p. 455, July 15, that "Practically the whole crop of Australian honey is put up in second-hand kerosene-cans," I wish to add that the use of any other than new honey-tins is prohibited in the State of Victoria by the Board of Health regulations gazetted Oct. 9, 1912. After the close of the present season this regulation will be strictly enforced.

QUEENS LAYING ABOVE THE BROOD-NEST.

Mr. M. Shallard, p. 798, Dec. 15, 1912, says that a good strain of Italians will not lay above the brood-nest. Well, I know a few good beekeepers in this part of Australia; and out of the lot I have heard of, there is only one other who wants the queen to be confined to one set of combs. I follow the example of most beekeepers by pinching the head of every queen which does not put brood into two stories in spring. One can not secure a strong enough worker force from one set of brood-combs (Langstroth) to get the best returns. In the apiaries giving the highest yield, hives are tiered up three and four stories high without a queen-excluder. In a letter received Feb. 1 from Mr. Ballinger, who is running an apiary on shares with me, the yield of one four-story hive for the month of January is given: Extracted, Jan. 7, 90



FIG. 3.—The apiary in the new location, four rows of 60 colonies each.

lbs.; Jan. 17, 120 lbs.; Jan. 24, 90 lbs.; Jan. 31, 90 lbs.; and still going strong. This total of 390 pounds for one month could not possibly have been gathered by the bees from one single brood-chamber. There is no need to restrict the queen; if her workers are as long-lived as they should be, there will soon be so many honey-carriers that they themselves will restrict the egg-laying by filling the cells with honey.

Since writing the above, my son, owing to a serious accident to Mr. Ballinger, has gone there to run the bees till Mr. B. has sufficiently recovered. My son writes that the yield of the eight best colonies from the beginning of January, when the flow commenced, to February 14, is as follows:

Hive No. 51, 600 lbs.; hive No. 260, 600 lbs.; hive No. 75, 480 lbs.; hive No. 18, 600 lbs.; hive No. 248, 540 lbs.; hive No. 205, 540 lbs.; hive No. 127, 540 lbs.; hive No. 256, 480 lbs. Total for 45 days, 4380 lbs.

The honey was not weighed but measured, being drawn straight from the extractor into 60-lb. cans.

These are, of course, the best colonies, and the general average for the 100 colonies in this apiary will be considerably lower; but it should also be stated that four-fifths of this yield came from one variety of eucalyptus—red gum (*Eucalyptus rostrata*), and that the bees are still going strong, now on white gum (*E. viminalis*) and messmate (*E. obliqua*). The figures, however, do not by any means establish a record. The season before last, one apiarist who is located about 40 miles south-

west from this spot obtained an average of 480 lbs. per colony for 220 colonies. Now, could a one-story queen produce sufficient bees to gather this amount of honey in the short space of 45 days, as in the case of my own apiary?

GIVING A COLONY HAVING A VIRGIN EGGS IN ORDER TO HASTEN HER EGG-LAYING.

I am greatly interested in this Miller versus Miller and Root controversy on pp. 788 and 796, Dec. 15. So far Mr. Arthur C. seems to have the best of the argument; but on second thought I am not so sure about it. For about ten years I have reared many of my queens in both nuclei and full-sized colonies with an aged queen laying continuously in the combs on which the young queen roams at large till she herself is laying. She is then removed, and after a week's interval another cell is given, and the process repeated throughout the season. Early in the spring I exchange queens between colonies having a three-year-old queen and nuclei with previous season's queens. Thus the young queens are made the best use of in the full colonies, reducing the swarming tendency at the same time, while the restriction of egg-laying produced by transferring the old queens to nuclei makes them last through the season. In fact, I have several now in their fourth year.

With an old queen still laying in a nucleus after a young laying queen is removed, and while another virgin is maturing, there is no need of giving either eggs or brood, as there is always a laying queen



Bee demonstration by the Ontario Department of Agriculture at the apiary of J. E. Fair, Haldimand Co., Ontario, Can. Photographed by R. F. Holtermann.

there. Now if, according to Mr. Arthur C., "The presence of eggs and larvæ bespeaks to the bees the presence of a laying queen, and probably conveys the same information to the virgin, and the normal reaction follows," what I should like to know is why the same result does not follow in the case of the nuclei with old queens; and why do bees frequently start queen-cells within 24

hours after the removal of the queen when (owing to the presence of eggs) they should not miss her for three days. Further, many of my queens are mated from upper stories with a laying queen below the excluder; and while taking care to leave each queen in her own compartment I frequently exchange combs between the two stories and yet my loss of virgin queens is only from



Mr. James Armstrong addressing the Ontario field meeting (Mr. Armstrong is standing with the frame in his hand. Mr. O. L. Hershiser and Mr. R. F. Holtermann are seated just at the left). Photographed by R. F. Holtermann.

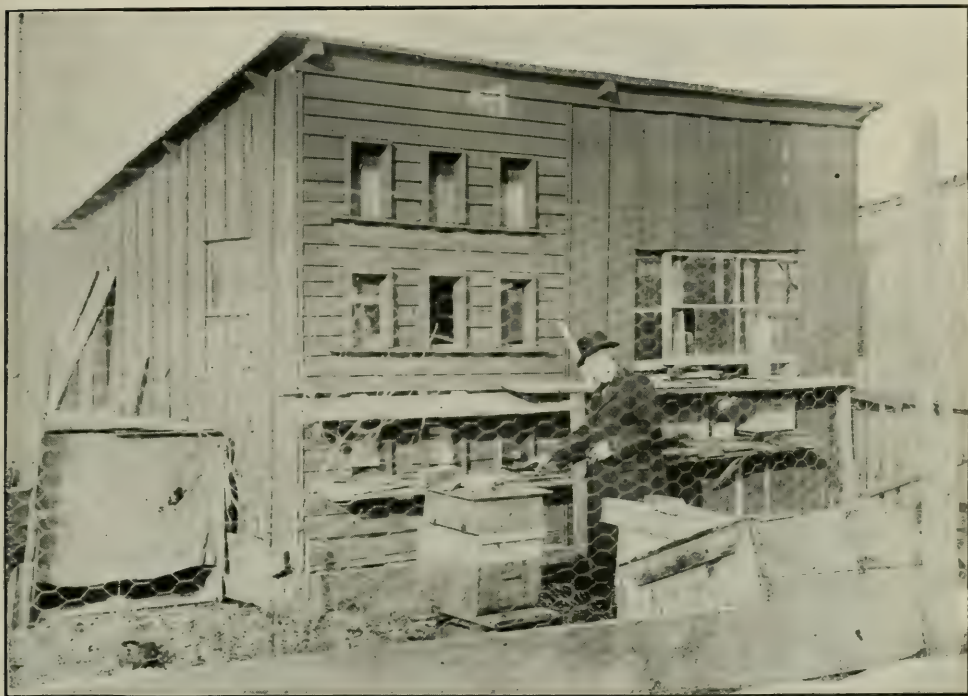


FIG. 1.—Geo. Fetzer's work-shop and house apiary.

two to three per cent. Years ago it used to be much heavier; and after reading the "egg-giving controversy" I remembered that I used to give each nucleus or colony a comb of eggs and brood, not to induce the queen to lay sooner, but to see by the presence or absence of queen-cells whether the queen had been lost in mating when examining the nuclei for laying queens on the tenth or eleventh day. Well, this test proved a failure because I would often find cells started, and the virgin queen being chased about on the combs by the bees or balled. It did not occur to me at the time that the giving of brood might be the cause of the treatment of the queen. I merely abandoned the plan as unreliable.

After reading page 796, Dec. 15, 1912, I decided to make another test. I had ten queens which had hatched a week before. Eight of them I found were already fertilized, but two had not mated. Into both of these hives I put a comb of eggs and larvæ from which every bee had been brushed. Twenty-four hours later I found that one queen had disappeared, and that the other was being balled. I dispersed the ball of bees with smoke and removed the comb of brood, and four days later that queen was laying. Of course one swallow does not make a summer; but at the same

time this is the only case of balling a virgin out of 150 this season, and the only way in which I can reconcile it with the experience with the nuclei, old queens, and the virgins on combs of eggs and brood above the excluder but from the same hive, is that it is not the presence of eggs but the addition of eggs and larvæ with the odor of another colony which causes the trouble. But if one of the Millers tells me that the odor is conveyed just the same by a comb containing only older and sealed brood, and which does not cause trouble, then I'll withdraw that theory in favor of a more feasible one he may bring forth.

Tooborac, Victoria, Aus., Feb. 28.

BEEKEEPING IN A CITY OF 60,000 POPULATION

BY GEORGE REX, JR.

The subject of my sketch is George Fetzer, who lives in the city of Allentown, Lehigh Co., Pa. He is about 60 years of age, a retired florist, and at present is interested in real estate; and out of pure love for the little honey-gatherers he is a devoted beekeeper, having about 30 colonies on several city lots, less than 50 feet from a street, and only a short distance from an alley with rows of houses only a few hun-



FIG. 2.—Geo. Fetzer's apiary in Allentown, Pa., a city of 60,000 population.

dred feet away. He says that he never has any trouble with his neighbors about the bees. He has all his bees, except six or eight colonies (which he recently purchased cheap), in ten-frame Langstroth hives, as he is an advocate of large hives, hence large brood-chambers and early brood.

The pictures were taken Jan. 1, 1913, and Mr. Fetzer thought that some of his queens had begun laying already, owing to the warm open winter. Mr. Fetzer does much winter feeding to stimulate the bees and to urge early brood-rearing. Bees were flying when pictures were taken. Snow had fallen before Christmas, followed by sleighing; but on New Year's day the temperature was about 60 in the sun, with bees flying, and his yards suggested a summer scene.

Fig. 1 shows his work-shop and bee-shed combined. The front sides show a number of windows, inside of which he has a hive. In extremely cold weather he can close the windows, insuring warmth for his little friends.

Fig. 2 shows his outdoor bees. They have no shed for protection. The picture indicates plainly how he has them arranged and put up for winter. In the background we seen several rows of houses showing how near they are located to his apiary. Mr. Fetzer works both for comb and extracted

honey, and got a good crop from each for 1912. He finds ready sale at the various grocery stores in Allentown, getting 18 cts. for fancy white comb and 40 cts. a quart for extracted (wholesale).

While there taking the pictures, an old gentleman came to Mr. Fetzer for the rheumatism cure, and he accommodated him by letting three or four bees sting his rheumatic hand. Noticing that he had quite a number of discolored marks on his hand I inquired, and was told that he comes to be stung several times a week, and that it benefits him greatly.

Stettlersville, Pa.

BEEKEEPING FROM A SCHOOLTEACHER'S STANDPOINT

BY CLARENCE FOOTE

As a teacher in a rural village school and as a beekeeper I have found several advantages for those engaged in the teacher's profession in combining the two vocations, and will show how close a connection exists between them. The principal advantages in beekeeping as a side line, and those which interested me most are the financial returns, natural qualifications of a teacher



A rural teacher invariably makes a good Leekeeper.

for the work, the healthfulness of the work, and the knowledge derived, a source of enthusiasm to both teacher and pupil aiding the teacher in understanding his pupils.

In thinking of the teaching profession in the rural schools, I recall an address made by a certain normal-school principal not long ago in which he said he believed the old adage, "Teachers are born and not made," was not so in the original, and a fault of the typesetter, for such a saying has not been always true. He thought the saying should have read and probably did read, "Teachers are born and not *paid*," for then it would be true in a practical way.

The teacher is not only poorly paid, but in most cases his position lasts only eight months of the year. He must then take up some other line of work during the summer season. Beekeeping affords a lucrative employment for the summer vacation time as well as for Saturdays during the other parts of the year.

The teacher represents, as a class, one of the best mind forces of the country. With his natural tendencies toward science and experiment, the modern pedagog would surely not retard the rapid progress in apiculture. With the present-day curriculum in the schools the subject of nature study has become compulsory, and the bee must be studied to a certain extent. The economic value of the bee has also to be brought out in connection with the proper pollenization of fruit-trees. Then, too, their habits have

to be discussed. In this way considerable knowledge is required of the teacher about the honey-producing insects in order to give the proper work for the children under his care.

The teacher who has been in the school-room for eight months does not feel, from point of duty to himself and his schoolwork for another year, like taking up a position in an office during the summer, and in a large number of cases does not feel like hiring out to a farmer to do all of his hard work for him. What he wants and needs is the open air, and this he can get by owning a small apiary and by working his yard intensively. This would be much better than owning more bees, as it would pay better for the money invested.

By having his bee-house and work-shop below the colonies the honey could be easily wheeled to the extractor in small quantities without expending so much vital energy as would be the case without a wheelbarrow or hand cart.

Then, again, many teachers, among them myself, are afflicted to some extent with rheumatism. They are often cured by the stings of the bee. By this I do not infer that every case can be cured by the method given; but at any rate, from my own experience I have found that, when I am away teaching, I often have a touch of the disease; but on coming home on vacations or in the summer I am not troubled in that way at all. Further, on looking into the matter I find that the hospitals in the local



Drinking to the health of the bees and their hostess.

cities use the remedy for certain cases, with almost miraculous results.

Still another reason is that the thoughts of the teacher are taken completely away from the cares of teaching. This is brought about by the "bee fever," with thoughts only of "bee lore" filling his mind.

The knowledge derived from beekeeping can certainly be made a source of enthusiasm to both teacher and pupil if the same amount of tact is used in arousing interest as in the other subjects. In other words, it brings about better harmony in the school-room, with less effort on the part of the teacher. Thus the schoolmaster uses a valuable asset that counts toward success in his career.

One who has learned the principles of nature by a close observation of the inmates of the hive will be greatly aided in understanding the different traits of character exhibited in the children, and will be much more ready to cope with the many difficulties that are sure to come up for solution. This readiness is often important, as every teacher knows in school life.

My building in which I do all inside work is 16 x 20 ft., and a 1½-story structure. It is located in an apple orchard with slope toward the south. The lower floor is concrete to prevent rats, mice, or other rodents from destroying supplies.

I have my four-frame reversible extractor on a platform a foot higher than the concrete floor. The honey-tank is on the same

elevation for convenience in drawing the honey off in pails. The uncapping pan and melter is similar to the Peterson, now so popular with beemen, though much smaller. It is heated by means of a one-burner oil-stove.

I have 18 colonies, spring count, although by actual numbers I have more than that, made by artificial increase to prevent swarming. I wintered them in father's house cellar with excellent results. No feeding was done, as the fruit-trees were in bloom two weeks earlier than usual this year.

Delanson, N. Y.

BEEKEEPING A RESTFUL AVOCATION

"Bee Parties."

BY MRS. CHARLES STEWART

Having mastered the A B C of beekeeping I am now deep in the mysteries of X Y Z. After several unsuccessful attempts at queen-rearing the bees finally accepted the artificial cells in a manner exceeding my wildest expectations; but for some unaccountable reason they brought to maturity only one queen, and the bees in the mating-box put an end to her. This did not discourage me, however, as it was an improvement over all former attempts, and gave me experimental work with nursery cages, mating-boxes, etc., that must eventually result in success.

To my mind, scientific queen-rearing is the very acme of apiculture, and my joy will be complete if I can successfully work out this problem.

My apiary consists of 19 colonies. But few are in prime condition, and making surplus honey; but I am having lots of fun in the apiary studying and experimenting. As a recreative agency I must say apiculture is without a rival.

Work? Why, yes; even with an apiary of 19 colonies there is work connected with it, and some hard work; but as some one has said, "A change of occupation is the best sort of rest." "Push on, keep moving," is a prescribed and well-known cure for the heartache.

With the exception of chasing a swarm, perhaps the most exciting part is climbing to the top of a tall ladder, bringing the clustered mass down from the most nearly inaccessible branch of an apple tree; or, perchance, the queen may have absconded with part of a large swarm a quarter of a mile up the street, the larger part returning to the hive, as I had a swarm do the other day. I pocketed my pride, shouldered a step-ladder and basket, started in pursuit of her ladyship, and brought her back home. I clipped her wings, and will have no more trouble from her till I can replace her with another queen. Of course this swarming nuisance can be avoided largely by clipping the queen; but apart from all this I say there is no recreative occupation affording as large and satisfactory returns in health, real pleasure, and financial profit, as the keeping of bees.

In these days, when there is such a wild search for novel entertainment, the bees too afford a most unique and instructive source.

I have given several bee parties; and,



A few of the ladies of the mothers' section of the Alden Club (Franklin Woman's Club). Introducing a queen direct to a shaken swarm.

following a short informal talk, I find it great sport showing off in the apiary, watching the amazed expression on the faces of my friends, listening to their exclamations of wonder and admiration as, without protection of veil or gloves, I shake a swarm, introduce a queen direct, or do some other easy stunt which seems to the onlooker as quite impossible.

And then the joys of harvest time! You old stagers know the "feel" of it; but to the amateur, as she takes from the supers the well-filled sections of beautiful honey, the pleasure and pride of production is intensified a hundredfold.

To my sisters, the busy home-makers, nervous and worn with the never-ending



Admiring the finished product.

routine of housework, and to those who are devoting their spare time to the "frivolous work of polished idleness" I would recommend the study of bee life and the practical side of apiculture.

Personally I find nothing so restful as an occasional run out into the beeyard—the coziest, most alluring spot on our place, there to spend an hour with my pets. Invariably I return to my work indoors rested, and with renewed interest and energy, my heart singing the glad refrain:

Mine be a cot beside the hill,
A beehive's hum shall soothe my ear;
A willow brook that turns a mill
With many a fall shall linger near.

Franklin, Mass.

WHEN I BEGAN BEEKEEPING

BY EUGENE SECOR

When I married I was anxious to begin home-making in the right way. I had bought a little place in the edge of town (and, by the way, we still occupy it), and began developing it. My father had always kept bees, in box hives of course, back in old

York State, and I knew as much about them as the average farmer of those days. That knowledge was bounded by a few facts pricked and pounded into my head by experience and observation. I knew bees would sting, that they would swarm, and that they would *sometimes* store a little surplus honey in a rough box made of inch lumber on top the hive, the access to which was through a couple of auger-holes through the inch board nailed tight to the top of the brood-chamber.

You may be assured that such practice never secured any white or early honey. By the time buckwheat blossomed, the weather got warm enough and the colony strong enough to build comb in that upper chamber. So about all the honey we ever got was buckwheat.

That's all I knew about bees. But when the spirit of adventure seized me, and I came to Iowa, I was ready for advanced work in the A B C class.

While I was growing up, Langstroth and Quinby appeared above the horizon, shedding a flood of light on the beekeeping world. I had never read their books; but an occasional item in the *American Agriculturist* and other papers always attracted my attention; and when I bought my first colony I sent for Quinby's "Mysteries of Beekeeping Explained," and began studying the natural history of the bee. At that time Mr. Quinby illustrated and gave instructions as to the use of the box hive; but it happened that there lived in my neighborhood a carpenter beekeeper who was making his own hives with the Langstroth idea, but not the Langstroth frame. His hives were about 10 x 14 x 10 deep, as nearly as I remember, with the frames crosswise. I got him to make me one, paying him \$3.00 for it. It was a dandy. It had a cap of gothic architecture, with ventilators in the gables, all painted white, and looked like a bird-house. I gave \$10.00 for a prime swarm to put into it. The hive being small I had plenty of swarms and quite a good deal of comb honey also, for that period.

That was before the days of sections, and I used various styles of honey-boxes, the most satisfactory, probably, being a glass box with corner post grooved to hold the glass sides and ends, and held together by nails in each corner through the cover and bottom of thin boards. Bits of comb were used for starters.

I soon found that the hive I had started with was too small, and made others larger, but with frames crosswise of the hive, after the pattern of the first one. When sections came into general use I changed again to the

Langstroth eight-frame hive, which I have used mostly since. I have used the ten-frame, but not with signal success.

Like a good many other beekeepers I passed through an inventive period, but never had the disease so hard that recovery was long delayed. I made the first honey-extractor I ever used. A half-barrel with a simple home-made reel to hold the frames, two grooved wooden wheels, one about four times as large as the other, a hard twisted cord belt, an upright peg through the outer edge of the larger wheel for power, and a few small wires wound around the reel to hold the frames from flying off centrifugally, and the extractor was complete. And it worked. The chief objection was that, with heavy frames, the belt would slip, starting and stopping.

What changes time has wrought! From the box-hive days of my boyhood to the frame, section, foundation, extractor, smoker, Italian bee, queen-rearing, queen-clipper, etc., sounds like a fairy tale. From a haphazard avocation, a pastime, beekeeping has become an industry, a vocation requiring energy, skill, capital, forethought, and experience. The tinpan method has developed into an art to control and direct and outwit the "Spirit of the hive."

"HOW DOTH THE BUSY BEE?"

She "doth" the best she knows—
Which isn't very much, to be exact;
She rises with the lark, and goes
Skylarking through the countryside,
Trying to wake the drowsy flowers
Before they're through their nap; in fact,
She noses far and wide
Between the showers.

She'll never see her first birthday,
But keeps right on
As if she'd come to stay;
And, copying forbears gone before,
She does a lot of work for naught;
When balm o' Gileads bud, anon
She brings a store
Of gum she hadn't ought.

She likes a hollow tree
In spite of dovetailed hives;
And she'll sting you or me
Who feeds her just as she will sting a bear
That robs her nest through greed.
She isn't wise beyond compare,
But does know how to make a seed.
Forest City, Iowa.

HONEY A CURE FOR SICK HEADACHE

BY MRS. J. R. DARLING

When I was a child we lived in a small house on a large lot in a little village. The country was beautiful, and my thoughts have often turned to the woods, meadows, and streams of my childhood home. As

we children carelessly played in the woods we often kidnapped a bee from some flower. I remember just how they looked as they would crawl out of my closed hand. What might we not have done with a few hives of bees if we could only have realized the opportunity which was ours!

When very small I became subject to sick headache. Father often had it, and I supposed it was my lot by inheritance. We moved to Kansas, where I married a Kansas farmer. I raised some chickens and turkeys, wishing to add to our income, but those dreadful headaches soon became entirely too familiar.

Later we moved to Minnesota, where the sight of bees and acres of wild land covered with flowers awakened in me a desire to try stocking our table with honey. And now this big brave husband of mine, who had ridden all the wild bronchos that came through our part of Kansas, and had often boasted that he was afraid of nothing, made various excuses about not wanting bees on the place because of their tendency to sting.

Of course I gave up, but still I longed to try keeping bees.

One day I learned that a Swede neighbor living across the lake from us had bees, and I began to negotiate for a colony, which he promised me for two dollars. In order to secure the consent of my English husband I promised to care for the bees; and our neighbor said, "Leave them alone and they will leave you alone." I also promised never to sell a pound of honey which we could use ourselves. I gained his consent; but as it was then late in the season I did not get my bees until the middle of the next June.

The next morning after the colony was moved to its new home we were proud and happy to see the busy bees at work. Two days later, while hoeing in the strawberries in front of the hive, one of these dear little fellows stung my husband on the eye. This either cured him or else his terror was pretended, for he has never seemed to be very much afraid of them since. Nearly all of us were stung some time during that summer. We got no honey, and had to feed the bees in the fall.

The next spring I was anxious to save all the swarms, so I began early to fret and stew, and by May 10 I had two extra hives at my command. All summer those hives mocked me, for they remained empty, while the original colony laid up all of 24 pounds of honey. It was good, and I still hoped. My "better half" enjoyed teasing me better than he would have enjoyed eating any quantity of honey. In spite of it, I kept up hope, and the next year a fine swarm

came off and with great excitement was hived.

In the fall I found my credit column looking well; for the parent hive and the new swarm had given us an average of 65 sections each. We were now eating honey; and as the weeks went by I began to wonder where my sick headache had gone. No amount of eating seemed to bring on an attack. Our family is large, and the honey was gone before spring came. The headaches returned, and I awakened to the fact that I had the bees to thank for a cure for sick headache, which could never be valued in dollars and cents. On July 8, 1912, I took off my first section of last year's crop, and to this day I have not had another attack of sick headache. Last year we started with two colonies. They increased to 6 and gave us 226 sections of comb honey.

Lifting is no problem, as the children are always glad to assist in the summer, and my husband helps put them away for winter. That is, he carries in the hives and I go ahead to open the doors and clear the way. We keep little folks from the hives by using low woven-wire fencing. We have never had a swarm cluster high; and our experience so far has been only play; but we mean to stay in the business.

Aitkin, Minn.

WHY HONEYBEES DO NOT GATHER NECTAR FROM SWEET PEAS AND GARDEN PEAS

BY JOHN H. LOVELL

The relation of the honeybee to the garden pea seems to be a question of considerable interest, not only to beekeepers but to farmers and students of flowers. Last summer I looked into the matter carefully, and herewith submit for your consideration an account of the results. I also enclose a drawing of a flower of the pea family, as there are probably many who are not familiar with the general structure of these flowers. A very large number of honey plants belong to this family. While it is desirable to know what flowers are not pollinated by the honeybee, especially where they belong to cultivated plants, yet they are so few in number that they hardly affect the importance of these insects as pollinating agents.

The sweet pea is the most popular of cultivated flowers. The garden is rare indeed in which it is not found; and we have heard of one enthusiast who would cultivate nothing else, but he grew varieties of every color and form. To obtain the best results the seed must be sown in a different soil every two or three years. This is not so much

because some food element has been exhausted, for this could be easily resupplied in a prepared fertilizer, but because the roots excrete some substance which is injurious to the plants and prevents the roots themselves from properly doing their accustomed work. There are many who put up a permanent trellis and grow their sweet peas in the same location for a dozen or more years. They often complain of the want of vigor the vines exhibit, and of the scarcity of the blossoms. Let them sow the seed in a new place and note the results.

There is something wanting in the spiritual makeup of the person who does not experience pleasure in beholding the brave display made by these beautiful flowers. They exhibit every hue from white to purple, while the individual flowers are often variegated. The fragrance is strong and sweet, suggestive of honey. In form they are shaped like a butterfly. They contain nectar, and are produced in great profusion. Surely we should expect to find them swarming with bees.

But you may examine them day after day, and not find a single insect on the flowers. During the past summer there was a row of sweet peas within fifty feet of my

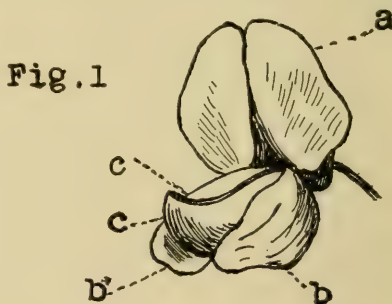


Fig. 1

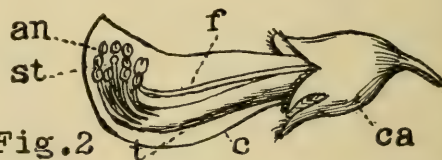


Fig. 2

FIG. 1.—A flower of the pea family (*Papilionaceae*), after Gray. a, the standard, a large broad, high-colored petal to attract attention; b, b, the wings on which the bee stands; c, c, the keel, composed of two petals, containing the stamens and pistil.

FIG. 2.—A section lengthwise through the keel, showing the stamens and pistil in place, all the petals, except one, removed; ca, the calyx; an, the ten anthers; st, the stigma. Nine of the stamens form a tube (t), at the bottom of which lies the nectar; the tenth stamen (f) is free to permit the bee to insert its tongue inside the tube. When a bee, resting its head against the standard, pushes down the keel, the anthers and stigma protrude through its apex and touch the under side of the bee's body.

apiary, in a location where the bees were constantly flying over them. I repeatedly examined the flowers; but during many weeks not a single bee did I observe on them. Why was this? Put a honeybee on a sweet-pea blossom and you will at once see that it is neither large enough nor strong enough to depress the keel, and that, consequently, it can not obtain the nectar.

Neither can any of our Maine bumblebees depress the keel. One day in September I saw a large female bumblebee (*Bombus fervidus*) fly to the flowers, but she did not even make a pretense of trying to obtain the nectar in the legitimate way. Instead she stood sidewise on one of the wing petals, and, thrusting her tongue into a crevice between the standard and one of the wings, she succeeded in reaching the nectar. I watched her while she made twenty visits, and in every instance she obtained the nectar by robbing the flowers. Subsequently she made many additional visits. On another day I saw a worker of *Bombus consimilis* obtain the nectar in the same manner.

Until the summer of 1912 I did not suppose that there was a single species of our native bees which could properly pollinate the flowers. But on September 15 and 22 a female leaf-cutting bee (*Megachile latimanus*), a large and powerful insect, put in an appearance. She easily depressed the keel, thrust her tongue beneath the standard into the staminal tube, and sucked the nectar for a long time. The stigma projected far out of the apex of the keel, touching the brush of hairs on the under side of the bee's body. This brush was loaded with pollen. After she had finished sucking she rested on the flower for several minutes, and permitted me to stroke her with my finger.

But it will, perhaps, be asked, "How do the honeybees know that they can not get the nectar of the sweet peas if they never visit them occasionally. We are apt to forget that the half-hour we watch a flower is only a small part of the day. How much may happen when we are not present! On the morning of August 16 I placed sugar syrup on about ten flowers of the sweet pea. This syrup, as you all know, is colorless and odorless, so that the conditions remained practically unchanged—that is, to bees flying near, the flowers offered no greater allurements than before. They could not discover the sugar syrup unless they alighted on the flowers. In the afternoon I saw two worker bumblebees feeding on the syrup. On the afternoon of August 17 I found three honeybees gathering sugar

syrup, all of which they finally carried away. Thus the syrup served its purpose, which was to detain the bees until I had an opportunity to see them.

By September 22 the honey-flow from the goldenrod was about over, and the bees had more time to look about. On the afternoon of this day I repeatedly saw them alight on the flowers of the sweet pea. They made no attempt to push down the keel. One of them stood on the back of the standard, and probed diligently, but, of course, vainly, for nectar under the calyx lobes. None of them succeeded in finding the nectar through crevices as did the bumblebees.

Even if the honeybee could obtain the nectar, the sweet pea is not sufficiently abundant to be of much value as a honey-plant in most localities. But the garden pea (*Pisum sativum*) in the vicinity of large canning-factories is often cultivated by the hundred acres. Large areas are also devoted to the culture of the edible pea by the market gardeners in the suburbs of large cities. In the flowers I examined, there was nectar present, though it was meager in quantity. Whether it varies in abundance in different varieties I am unable to say, but probably there is not much difference.

Not once during the entire summer did I see a honeybee on the flowers, though they were flying across the garden by the hundred. Evidently they can not obtain the nectar. One day I saw them alight on the leaves for the purpose of obtaining water, which was still remaining there from a previous rain. Several times I saw a queen of *Bombus fervidus* visit the flowers in the legitimate way; but, as in each instance, she visited only three or four flowers, I concluded she found very little nectar. I have never once seen the honeybee obtain the nectar of the garden pea; and, so far as I can learn, in not a single instance is there an authentic record, either in Europe or America, of any one ever having seen honeybees actually sucking the nectar of the edible garden pea.

The garden pea as a honey-plant is, then, of no value. Almost invariably they are self-fertilized. It was, indeed, for this reason that Gregor Mendel selected them for his celebrated experiments in hybridization. He crossed a tall variety with a dwarf, and all the offspring of the first generation were tall. A cross between round peas and wrinkled peas gave in the first generation hybrids which produced only round peas; while a cross between white and colored flowers yielded hybrids with colored flowers alone. As he raised a great

number of plants which grew outdoors, his experiments would have been impossible had the flowers been frequently pollinated by insects. In his famous paper, which is now before me, he says that the risk of false impregnation is very slight. "Among more than 10,000 plants which were carefully examined, there were only a very few cases where an indubitable false impregnation had occurred."

Here are two kinds of flowers belonging to the same family, possessing form, structure, color, odor, and nectar, adaptations for insect pollination, and yet they are rarely visited by insects. It would be easy to draw hasty conclusions. But let us remember that these plants are growing far from their original home or habitat under greatly changed conditions. The sweet pea comes from Sicily. The garden pea is no longer known in the wild state, but is believed to have been introduced into Europe from Western Asia. It was cultivated by the ancient Greeks, and even in the prehistoric times of the bronze age, for the seeds have been found among the relics of the lake-dwellers of Switzerland. Though only occasionally cross-pollinated to-day, there is not a shadow of doubt that insects have played a most important part in the past history of these flowers, when, growing wild in some distant land, they were in the process of becoming what they are. Their utility to man and their existence in America depends upon the fact that they have retained the power of self-fertilization.

Though acclimatized strains of the sweet pea are fruitful in India, seed brought from and sown in the gardens of Calcutta produces plants with small leaves and a few sterile flowers. How mistaken would be the conclusion of a native of India who should form the opinion that the flowers are *never fruitful*! We who live in America would err to an equal extent if we should assert that insects had never been beneficial to the flowers of the garden pea (*Pisum sativum* L.), or to those of the sweet pea (*Lathyrus odoratus* L.).

Waldoboro, Maine.

BEES IN AN ATTIC IN A CITY OF 423,000 INHABITANTS

BY JOHN A. BRAME

In the spring of 1911 I purchased a colony of very gentle yellow bees for \$10.00, giving the price for the bees only, as I furnished my own hive, of which I had plenty. I had lost five colonies the previous fall because sickness had prevented my giving them the proper care.

Placing this hive in the center window of my attic was an experiment which, so far, is a success. This colony gave me 64 sections of clover honey during 1911, and cast a swarm late in August, which was prevented from leaving by a trap at the entrance for catching the queen.

The year 1912 was a banner one for me. The daughter of the original colony gave me 96 sections of clover honey.

Hive No. 2, which had contained the old queen, was queenless early in the spring; so I lost out there, as I did not discover it soon enough to get any surplus.

Hive No. 3 is a collection of swarms, or, rather, part of two swarms of which I could not get the queens. Part of one swarm is from a church chimney; the other is from a 40-foot pear tree. A friend in Beeville, Texas, in the bee and honey business, promised to mail me a queen. As luck happened, the queen came the day I captured part of the pear-tree swarm. I locked the bees in an observation hive for three days, with this queen caged, after which she began to lay. A few days later I got part of the chimney swarm. These I kept in a paste-board box in the cellar for three days, feeding them through a screen top; then I punctured a hole in the box and set it under the observation hive which they also made their home.

Previous to purchasing this \$10.00 colony I kept bees in my back yard; but I had a neighbor who thought more of cleanliness than godliness, and had the habit of beating rugs and carpets practically all day. Since I have had them in the attic the regular spring and fall carpet beating is sufficient. Being confined all day in the dust and dye-laden department store I find it a relief to work with my bees in the evenings and holidays. The \$10.00, I figure, was well spent; and if I ever want another colony I shall not hesitate to pay the same for it.

Buffalo, N. Y.

A Correction

In regard to the illustration, page 350, May 15, there was a slight error made in reproducing my sketch. The super should be shown with the end toward the reader, not the side. The great advantage in using such a device is the ease and quickness with which a super can be set on it without crushing bees, and with the knowledge that it will stay where you put it. The cover need not be removed from the super—just raise the super with the cover; puff in the smoke and lift the super on to the holder. I prefer the box arrangement, as it is handy for fuel for the smoker, bee-brush, and tools that are apt to be mislaid and must be hunted for when wanted.

Mystic, Ct., June 4.

ELMER E. WAITE.

Heads of Grain from Different Fields

A Peculiar Malady or Disease

Having a colony of bees whose case I do not understand, and can find nothing in my books and papers to explain, I take the liberty of writing you if, perchance, you may be able to give me help from your experience and knowledge of the experience of others.

During the day all seems to go well; but at night I notice a peculiar odor at the entrance, not unlike the odor of a colony when stirred up and angry, but stronger. It was a sort of combined odor of acid and bitter; and in the morning, before sunrise, I find a lot of bees in front of the hive apparently dead, though they nearly all revive when the sun warms them up. Indeed, they keep crawling out one or two at a time until the sun shines quite warmly. They come out with tongue extended and dragging, and keep clawing at the tongue, and, indeed, somewhat at head and antennæ with the fore feet, as though something tasted very bad. In a few minutes they cease to struggle, and lie on the alighting-board apparently dead until thoroughly warmed up, when many of them revive and fly away, though some die. When the warmth begins to revive them they first begin to move the legs; then the abdomen begins to move with respiration, and after a time they begin to buzz and tumble about in a drunken sort of way, and at last get on the wing and disappear. Most of those that do not recover revive somewhat, and crawl about for a time, but do not establish abdominal respiration, and finally give up.

There seems to be no noticeable alteration in shape, color, or condition, except the extension of the tongue, and perhaps drooping of the head, the most noticeable thing being the clawing at the mouth and especially the tongue.

I have noticed a few carrying in pollen of a deep purple color, and picked up one sick bee carrying a full load of it. The colony cast a strong swarm in May, and the hive is now well filled with bees. The queen seems to be laying now very nicely, as they have some brood in various stages, though I was not able to discover any until the last few days after I had given them a frame of brood, fearing their queen was lost. They have quite a quantity of newly stored unsealed honey, and are carrying lots of pollen every morning, and keep busily at work all day except that to-day they spent an hour or so buzzing about the entrance and vicinity of the hive, much as young bees do at first, though I am sure none have yet hatched from the young queen's eggs, and all the brood left by the old queen hatched, and the cells were all cleaned out long ago.

S. FRED WEBBER.

Colorado Springs, Colo., June 24.

[We have carefully read all you have to say, but are unable to decide what is the real cause. There are some symptoms that seem to indicate bee-paralysis. Other symptoms seem to point to poisoning. We can not understand, though, why the bees should apparently revive if poisoning is the source of trouble, when they begin to warm up in the morning. If any of our readers can offer a satisfactory explanation we should be glad to hear from them.—Ed.]

Freaks of Swarming

I should like to know if others have had the same experience with bees that I had this morning. My hives are marked A, B, C, etc. I saw that the bees were clustered on A and C. I went up to them, and a swarm came out of C and soon pitched on an apple-tree. As soon as they were settled I got things ready and shook them. They went into the hive all right; went back to the other hives and found the bees coming out of A with a rush. They whirled around in the air, and I waited for them to cluster,

but they did not, and soon I saw that they were going into C, where the swarm had just come out. There was no fighting nor disputing about it. I thought it was the same swarm that issued; but it was not. That swarm is in the hive they went into. The bees that were clustered on the alighting-board of A did not fly; and after the rush was over they went into the hive. They are flying at 2 P. M., while those in C act quite like a new swarm getting settled in new quarters.

Norridgewood, Me., June 27. MRS. ROSA WADE.

[Sometimes during the swarming season bees will act as if they were crazy. Instead of behaving themselves as bees should, or as laid down in the standard text-books, they will go contrary to all rules of procedure in the case of swarming, and leave their owner guessing just as they have done with you. There was nothing unusual in the case of the first swarm that came out and which you hived; but it was quite unusual for the other swarm to go out and to go into the hive where the first swarm came out. We don't know how to explain it other than to say it was a freak swarm. We should naturally expect that the swarm that went into C would come out again, because the cells left in C by the first swarm will soon start an after-swarm, providing the honey-flow continues.—Ed.]

How to Protect Combs from the Bee-moth

Please tell me how to keep combs of honey, and where to keep them to keep the moth from getting to them, and how to keep extracted combs. I should like to save some over for another year if I can do so. The moths are plentiful here.

REV. F. M. WELBORN.

Newcastle, N. C., June 24.

[Combs of honey or empty combs left on hives containing Italian bees or their crosses will be comparatively free from the wax-worm. After combs are removed from the hives they should be placed in a building that is bee-tight—that is, a building where neither the moth-miller nor any bees can get at them. If so protected there will be no eggs laid, and consequently no work of the wax-moth. If, however, the combs contain eggs from the wax-moth before they were put into a tight compartment, the wax-worms will develop later on. Where there is any trouble of this kind it is usually the rule to stack the combs in a series four or five high, place a saucer of carbon bisulphide on top of the combs, then cover the whole. The fumes of this stuff will settle down and destroy the eggs or any moth-millers that may be present. Sulphur may be used in a similar way. But, as a rule, apply the brimstone or sulphur in a room. Place a quantity of it in an iron kettle and ignite it. The room is then closed, and left for twenty-four hours. For full particulars on how to take care of such combs see "Bee-moths" in our A B C and X Y Z of Bee Culture.—Ed.]

"Honey-bound" Queens

In looking over the colonies this morning I find two without brood, one with only a little. One has the brood-chamber full of honey, but is beginning to work in the super, so I think they may take that up into the super. Had I better put a new queen into the two that show no brood? I could not find a queen in either colony, but they are working—one of them very well, the other not so well.

Lakewood, O., March 3. J. D. McCALMONT.

[It is not entirely clear to us whether the two colonies you mention are queenless or not. When there has been a heavy flow of honey a colony will get into a condition that we call "honey-bound," that is to say, every available cell is filled with

honey, so that the queen is crowded out absolutely. In that case she will shrink down so that she will not look much larger than an ordinary bee; but, as a general rule, when a hive is honey-bound there will be a few eggs and young brood which the queen will somehow manage to find room for. Taking every thing into consideration we are inclined to the opinion that the two colonies mentioned are queenless. To prove this, give them a frame of unsealed young brood. If cells are started, of course you will know that they are without a queen. If you wish to save time it would pay you to put a laying queen in each of the two colonies if they are queenless. If you would like the fun of raising queens you can raise your own.—Ed.]

Another Plan of Increase

I have been trying a new plan for artificial swarming which seems to prove a good one. The plan is as follows: Take a hive (one-story); fill it with brood-frames, and place it on a strong colony. The bees will soon begin to work in the frames, which should be above the old brood-nest, and the queen will begin to lay in it. When the brood is in all stages, smoke the bees at the entrance of the hive, then carefully take the new brood-nest and carry it to the new hive or place where you wish it to remain. In this way it leaves both hives strong. Care should be taken, however, or you will receive a severe stinging.

Waverly, N. Y., June 26. J. M. ELSBREE.

[The plan will work in most cases during warm or hot weather; but in early summer or spring there will be danger that some of the brood will be chilled or neglected on account of old flying bees going back to the old stand. The Alexander plan removes this difficulty, and in most instances the beginner will succeed better.—Ed.]

Small Queens; Variation in Markings

Would you please answer the following questions for me?

1. Do hybrids fly as far as the Italians do?
2. Did you ever know of a queen no larger than a worker bee? In clipping the wings of my queens I came to one hive where I could find none, but found unsealed queen-cells and also numerous worker eggs regularly deposited in worker-cells. They had not cast any swarm yet. The next day they swarmed; but the swarm returned after clustering in a tree-top. I found the queen in front of the hive as her wings were a little ragged, so she could not fly well; but she was the real queen, as I caged her and the bees would cling to the cage very persistently. Why do you suppose she was so unusually small? Do you think she would be as good as a normal-sized queen? She had a very populous hive.

3. Have not queens which produce a few black drones and workers been mated to a black drone of the ordinary common black or German bees?

Swea City, Iowa, June 30. ALBERT SWANSON.

[1. Hybrids fly as far as Italians. There is no reason why they should not.

2. Occasionally we find a queen not much bigger than a worker bee. They usually are not of much value, and are supposed to have been raised from a cell where the larva was too far developed. Such queens should be replaced. It is evident from the general description in your letter that she was not doing very well, because the bees were building cells and trying to replace her. There is a possibility, also, that the bee that you found was nothing more nor less than a laying worker. There will be several of them in the hive; but from your general description we should be inclined to believe that what you found was really a queen-bee but a very small one. It is proper to state in this connection that, after a queen has ceased laying in the fall of the year, she will shrink down so that she will be only slightly larger than a worker-bee; but in this particular case

it is evident that the queen was at her best, which was very poor.

3. Yes, a queen which has mated with a black drone will produce bees and drones of various markings. Sometimes the hybrids are uniformly marked as two-banded bees; but as a rule there will be three-banded bees, two-banded, one-banded, and black bees in a cross of this kind.—Ed.]

Is it a Disease or Something they Gather?

I notice in GLEANINGS, June 1, page 387, that Mr. B. L. Fisher tells us that his bees are troubled with paralysis. I was much interested in the article, because in some respects my bees are in a similar condition. I have worked considerably with professional beekeepers, but this is the first season I have had bees of my own. I have had ample opportunity to watch and study the actions of my bees, and feel inclined to believe that, at least in my case, it is not paralysis. While I have been watching, a bee from the field would alight in front of the hive, a guard would grab it by a leg or wing, and the guard would not attempt to sting the victim for quite a while. Then it seems as if the guard stings the other in the abdomen. The one that has been stung just hops about on the ground, not able to take flight again. Sometimes the would-be victim breaks away from the other and goes into the hive, and no other bees interfere with it. All my stands have plenty of honey; no robbing going on. All stands have the same trouble. It seems that there are no bees being killed inside the hives because there are none being carried out. It appears to me that the field bee loses its exact colony odor, or the guard mistakes its own colony odor. There are a great many acres of Himalaya blackberries that have been in bloom for two weeks, which has been the main source of honey and pollen. The blossoms are very fuzzy, and the bees wallow among the hairy stuff, one after the other; therefore I thought some of the bees might have taken up some of the odor of other colonies. I did not experience any of this trouble among the bees until the berries came in bloom. It keeps my colonies about at a standstill. I hope that some of the experienced beekeepers will give more light on the subject.

Watsonville, Cal., June 24. C. W. ARNETT.

[The fact that you say the trouble began after the bees began to work on the Himalaya blackberry rather suggests that this plant may be indirectly the cause. It is possible that some hairy substance, or the pollen itself, perhaps, besmeares the bees in such a way as to make them unwelcome to their former comrades. If any of our subscribers have had a similar experience we should be glad to hear from them.—Ed.]

Propolis on Hoffman Frames

I am using Madary's ten-frame hive, which is 16 inches wide, and I find that, after the Hoffman frames have been handled a few times, enough propolis gets stuck in between them to make it impractical to use the full ten frames. I have been asking several beekeepers how it would do to use nine frames and a follower; but they all say that a follower is a bad thing, as it gets stuck in the hive by brace-combs. What would you do under the circumstances?

Modesto, Cal., Feb. 5.

SUBSCRIBER.

[The use of a follower is largely a matter of personal opinion. Some beekeepers will not use them—can not be hired to use them—while others prefer them every time. It is true that it is often difficult to get a follower out without breaking it. Possibly those who will not use a follower could be induced to do so if the construction were much more substantial than it is now.

Under the circumstances, since your hives are not quite wide enough for the ten frames we would certainly use nine and a follower.—Ed.]

Our Homes

A. I. Root

In his law doth he meditate day and night.—
PSALM 1:2.

I have made another "discovery," and I rather think it is a *great* discovery. Suppose you try it and see. First let me say that it seems to me that the older I grow the busier I become—that is, there are more things I want to do than I can get around to. There are more of God's gifts I wish to "investigate;" and for years past I have been feeling that I could not waste a minute of time. Mrs. Root often asks me to go visiting among the neighbors. Well, if said neighbors are like myself, and are exploring God's gifts in the way of bees or chickens or the garden, I am glad to visit them; but I do not want to sit down on the porch and talk about this, that, and the other. I want to be *doing* something.

My good friend Prof. Holden, in one of his "corn talks," spoke of pulling up some of the stalks that did not have any ears, and using them for fodder, giving the rest a better chance. He said a boy in his audience once suggested that these drones among the corn were just standing around all summer long, "doin' nothin'." Now, there are people in this world—yes, a good lot of them, standing around with their hands in their pockets during this beautiful month of June doing nothing, like the useless cornstalks. I could not stand that way of living. It would kill me. I have to be busy. I want my life to produce *ears of corn* or something equivalent, that is good for humanity. When it ceases doing that I hope the great Father will "pull me up" so as to give "others a better chance." Now for my discovery.

For fully forty years I have objected to being obliged to sit still and do nothing. Yes, before I was among the church people I objected to seeing great audiences sitting still until services begin—that is, if they happen to come early. I used to tell Mrs. Root I did not want to go to church until things got under way; but she very much objects to being late at any public meeting; and as each one of us stuck to our respective point there did not seem to be any "common ground" other than being right on the mark when meeting opened; and of late we have tried to come to an agreement that way. An electric automobile is a wonderful help in that respect. I can read my *Sunday School Times* until within three minutes of church time; and even if our bungalow is a little more than half a mile from the church we can be there promptly—that is, with the aid of the electric auto.

I have been calling this beautiful "spry" little auto one of God's gifts; but some of you may insist that this is a gift from the ingenious brain and skill of mankind. Well, you can have it that way if you choose, for God gave the wonderful brain and astonishing skill of our best mechanics of this present age. Do you ask why I do not put the *Sunday School Times* in my pocket and read it after I get to church, provided I get there before services are started? Well, I have done that, both in Florida and Medina. It has always been a question in my mind whether one ought to be seen reading a paper or, say, a letter while in church. It is not exactly common, and I am not sure that it ought to be. If everybody knew I was reading the *Sunday School Times* instead of a daily paper (or a Sunday-morning paper), it might be better. Keep in mind that I am always in front as close to the good minister as I can get, principally on account of my deafness, but also because I have all my life wanted to get up in close touch with the teacher, preacher, or the boss; and I am sure I have been benefited by so doing. I have no patience with people who crowd in on the back seats as far from the speaker as they can get. Our own pastor has urged and exhorted people to come up and fill the front seats first, and leave the back seats for the timid ones or strangers; but not half a dozen people, unless they were deaf like myself, heeded the pastor's request. Mrs. Root would come up well to the front were it not that she is a fresh-air advocate. Sometimes I am inclined to call her a fresh-air *fiend*; but the word "fiend" does not fit her in any respect whatever. I might call her a fresh-air angel, but she would object to that title as much as to the other.

Well, now we are getting close to my discovery. My conscience has always troubled me when I sat up in front reading the *Sunday School Times* or even that bright little Sunday-school paper we have down in Florida at our Presbyterian Sunday-school called *Forward*. I have for years past carried a good-sized Bible, with coarse print, that I can read easily. Bro. Rood, the superintendent of our Florida Sunday-school, asks every morning, "How many of you have brought a Bible?" Well, I have always felt ashamed when I have had no Bible to hold up. One Sunday I picked up an old rusty Bible that I found on the seats, and asked him if that would not do. He shook his head while the audience smiled. He said he wanted everybody to bring his own copy

of the Bible. I tried to excuse myself one Sunday morning by saying, "Mrs. Root forgot to bring ours." But the superintendent would not accept that as a good excuse; and when I was obliged to see there was no other way I carried my own Bible every time.

Well, my good pastor of the Congregational Church here in Medina is following Bro. Rood. May be, however, he is ahead of him. As soon as he came to Medina he commenced building up our prayer-meeting—yes, "building up" is the word; and just as soon as the meeting was opened on Thursday night he would say, just as Bro. Rood does, "How many of you have your Bibles in hand? Hold them up."

Now, although it is not a part of the discovery I am going to relate, I want to say right here that our Medina prayer-meeting has been built up from a dozen or so (perhaps more in good weather) to over 100. We recently had 127 out to our week-day prayer-meeting. Yes, they were "mostly women," as you may guess; but may God be praised for the women. They are going to vote pretty soon here in Ohio, and then you will see whether or not they will "count," and count for righteousness.

Well, since I have opened the way pretty thoroughly, as you will probably all agree, I now want to announce my discovery. Nobody thinks of objecting—surely not the pastor of the church—if you open the Bible you have been carrying under your arm and read it at every opportunity when one minute seems going to waste. If I get there early I read my Bible; and while they are singing—at least while the choir is singing*—I read my Bible. And while they are taking up the collection I read my Bible. I began with Genesis and have read it to myself in church, clear up into Exodus. During our Sunday-school lessons in Genesis I read many parts of that book over and over; and it has not only been a great help but a great blessing as well. Of course, I do not think of reading even the Bible when our pastor is speaking or when they are singing, and the audience is expected

to join in. I try not to be so rude as to read while anybody is talking—that is, when he is talking about any thing I am expected to hear.

Now, if you want to test my discovery and decide for yourself whether it is a great discovery or not, take your Bible—the one you are used to and are familiar with, to Sunday-school, prayer-meeting, Christian Endeavor meeting, to the Y. M. C. A., or to the Men's Brotherhood. When the Bible or something from the Bible is touched on, you want to be able to put your finger on it quick. I am getting to be quite an expert, if you will excuse so much boasting, in turning to any passage quickly that may be inquired about or called for; and you do not know how happy I feel over it. Now ask your pastor and Sunday-school superintendent or any other good authority if anybody can think of objecting to your having a Bible with you, especially on Sunday, and reading it at every spare moment. Does God's word indorse my discovery in that beautiful first Psalm—"in his law doth he meditate day and night"? Of course, all people do not look at the Bible and regard it as I do; but I think I may safely say that it does not make any difference who you are or what you believe, it will richly repay you to become conversant with that book. If you are a skeptic or an infidel, and will continue to read the Bible as I have been reading it year in and year out, it will do you a vast lot of good. I think I may safely say it will be money in your pocket, although I dislike to speak of the Scriptures in that way. Let me tell you a little story I have told before. It fits in exceedingly well right here.

My good friend Irving Keek, who occasionally writes for these pages, was a well-to-do banker, and started off with his wife and family to locate in Southern Florida. In order to reach their destination they were obliged to take a long drive through a large piece of woods, without any human habitations on the way. Their route took them over a road that had been very much injured by floods. When out in the woods, miles from any dwelling, their wagon was overturned; and while the good wife was not much injured, their year-old baby was killed. There was no other way than to bury the little darling of the household in that lonely spot—at least for the time being. The mother was a professing Christian, but the father was not. At that date (years ago), it was not customary or "fashionable" for bankers to be professing Christians. I wonder if there has not been a change for the better since that time. Well, before that sad household had fixed up to

* Years ago, even before I was a Christian, I made the discovery that I could enjoy a good book or a good story, for that matter, very much better when listening to music. When my two sisters were playing together on what we called a melodeon in those days I would many times get a favorite book and get enthusiasm and inspiration from the book and music together; and throughout all my life, if I want to enjoy looking at a beautiful picture or painting, or even a piece of statuary, I sometimes have a craving for music for an accompaniment. Now, then, while the choir were singing some beautiful anthem I would turn over and read the story of Joseph; and with the inspiration of the music, and, I may say also, with the sense of the presence of the Holy Spirit, I could comprehend God's dealings with mankind in a way that would be almost impossible without the stimulus of inspiring music.

go on their lonely drive, Mrs. Keek insisted on some sort of funeral service over that little new-made grave, and they read something from the Bible, or friend Keek did, and then during those brief sad rites she asked Mr. Keek to give her his promise that he would read at least a little something out of that Bible, God's holy word, every day, for one year, in memory of the death of the little one so suddenly snatched away. What father, under such circumstances, could refuse such a request? Of course he gave his promise; and being a banker, and a successful one, he kept his promise sacredly. What do you suppose was the outcome? I hardly need tell you. Before a year was up, perhaps long before—I can not quite remember—that daily Bible-reading made him a humble follower

of the Lamb of God who taketh away the sin of the world; and he has ever since been not only a professing Christian but a working one. So much for keeping a promise to read the Bible every day. This was long before, mind you, the Endeavor Society was established with its "iron-clad" rules including the one commencing, "I promise to read my Bible every day."

Now, friends, how many are there who will give me a like promise to read the Bible every day—that is, where and when circumstances will permit? And if you will give me that promise and send it to me on a postal card, I am sure you will find the other part of that second verse of the first Psalm is also true—"But his delight is in the law of the Lord."

High-pressure Gardening

FLORIDA AND OHIO CONTRASTED.

One reason why I like to make garden in Florida is because the soil moves so easily, or at least in the greater part of Florida. It is a sort of sand or light sandy loam; and even if you are old and feeble, you can, with a very light hoe, move the soil and do a lot of work without very much fatiguing exertion. And it is the same way in spading up the ground. If you do not want to bother with a horse, by taking it easy you can take out great shovelfuls; and if there is any trash on top you can turn it under. Now, after working in that sort of soil all winter it is something of a jar on one's nerves to attempt to make garden here in this stiff yellow clay of Medina Co., Ohio—at least the greater part of this county is that way. After the great floods, of course the ground had settled down hard and was uninviting to look at. Although there is an abundance of underdrains under my quarter-acre, the ground was about as hard as a brickyard. We covered it pretty well with manure and waited for it to dry off. But the young people got in such a hurry to have their garden plowed that they could not wait to have theirs dry, and I reluctantly permitted our teamster to plow my garden also. Had it been ridged up in the fall with good deep ditches between the ridges, so the frost could work it up, it would have been very much better; but this was neglected. We had it plowed and harrowed, and worked with a disk as well as we could. And then we planted our potatoes, corn, beans, etc.; and as the weather grew warmer (or at least it ought to have been warmer), we put in our lima beans,

Hubbard squashes, melons, etc. Well, here in Ohio we had, first, a remarkably cold wet May. Finally the rains let up, but it was so cold that we had a little touch of frost on the 8th and 9th of June. Then it stopped raining for about a month. Most of the potatoes came up; but the first planting of corn, even the Golden Bantam, only about a half of it came up. In order to get a stand of corn where it failed on account of the cold and wet, we planted it over *four times* in all; and then when we found a hill was an entire failure we put in string beans. Of course I am speaking of sweet corn. The Golden Bantam stood it the best of any; but the regular sweet corn, or the biggest part of it, could not stand the cold clods, for our whole garden (until almost the first of July) was little but clods, thus presenting a great contrast to our Florida soil.

Oh! I forgot to say there are no gravel stones in Florida. In digging ditches or making garden one never finds a pebble of any size. That is one reason why we have to purchase grit for chickens. There are no gravel stones—at least not in our locality.

THE DASHEEN IN OHIO.

I brought with me from Florida, about the middle of April, fifty or sixty dasheen bulbs. Then I got a big sheet-iron wheelbarrow, almost as soon as I arrived here, and filled it with rich garden soil and old manure, about half and half. As it was too cool to put these tropical tubers in the ground I planted them in that wheelbarrow. I wheeled them out when the sun shone, and wheeled them back in the basement at

night! and to boost them along I put them near the gas-burner that burns all night to give hot water as well as cold. They had begun to sprout when I left Florida; but they did not seem to take kindly to the existing conditions here in Ohio. When I planted them out in the open ground along in May I felt a good deal discouraged. Only two or three had begun to grow and put out their white rootlets. However, I stirred the ground around them, and a few of them ventured to peep out through the soil; but I had to cover these few to save them from the frost. It was along the first week in June before I began to have any hope of my dasheens. When I saw, however, that about half of the number* had begun to start I dug away the soil around the whole of them clear down so I could see the little white roots. Then I put around in this cavity a mulching of old well-rotted manure and covered it with soil. When the warm weather came on the last of June they began to send out rootlets into that rich compost; and whenever we had a warm spell they began to grow. But the dry spell came on, and that did not suit, because they are what I might call half aquatic in their habits. I got out my garden hose and gave them a thorough soaking. But the fierce hot sun was up to 100 degrees the last of June, and this great heat baked the soil and made the leaves curl up. That did not suit me. I told our teamster to get me a big load of well-rotted manure and haul it up near the dasheens. Then I mellowed up the soil and mulched the whole surface of the ground and around and between the dasheens. Then I gave the whole batch a thorough soaking with the garden hose. I made it wet clear down, and kept wetting it every other night just about sundown. Then I began to get my reward. That suited the dasheens to a dot; and, by the way, it also suited the rows of corn and potatoes on either side, because I kept stirring up the clay soil with the chunks of manure. The lumps that were left in plowing began to slacken up; and to-day, July 9, I have a nice mellow soil that works about as easily as the Florida sand. Not only are the

dasheens booming, but the rows of corn and potatoes on each side of the dasheens have got track of the rich food, and are sending their roots over into that manure compost. To see how fast the corn grew I stretched up a leaf one morning, and found that it reached to my hip pocket, and it kept growing about two inches a day until we had a big thunder-shower, or a succession of them; and when I could get out to measure my corn leaf it was higher than my head; and what a beautiful dark green those hills of sweet corn did put on! And the rows of potatoes on the other side that had, during drouth, almost given up, just put on "new life."

Now, if you wish to know what I am driving at, it is this. You can do high-pressure gardening if you are willing to work, in the most forbidding soil, and no matter whether it rains or not, if you have arrangements to furnish good old stable manure and plenty of water. With all the discouragements and stumbling-blocks we have had this queer season, we have about the finest garden—at least where I applied the water—I ever had. As there was some manure left after treating the dasheens I gave some to some cantaloupe melons and Hubbard squashes. The way I did it was to take away the soil clear down until I exposed the tender white roots. Then I filled this cavity with old black manure and covered it with fine soil, first soaking the manure thoroughly with water, pouring on water several times until the dry thirsty earth was saturated. The Hubbard squashes got over their discouraged look, and "sat up nights" to put out big leaves and send out big runners. A drenching thunder-shower is rather better with its moist atmosphere than artificial watering; but the water is very important when we have a long dry spell.

Some of you may suggest that it does not pay to go to all this fuss for a little garden spot—better buy your green stuff at the grocery. But I tell you, friends, it pays in two ways. First, you have fresh vegetables, better than can be bought anywhere—at least as a rule. Second, and most important, you have the satisfaction of demonstrating that you are boss of the elements. In other words, you can get a crop in spite of frost, drouth, too much wet, or any of these hindrances. It hurts me mentally, physically, and spiritually to undertake a job and make a failure of it. So far as I know I have the first dasheens planted in Ohio; and if I succeed in demonstrating that these delicious vegetables can be grown here as well as in Florida I shall have ac-

* I am glad to tell you that every single one of the dasheen tubers came up sooner or later; and in some hills where they were so badly dried and wilted that I put in two, thinking that possibly one might live, both came up. Now, here is another matter: In several places I carefully dug out one of the tubers and transplanted it. Of course they had quite a few of these young white roots and rootlets; and every one grew, and I think I may safely say it is a very easy vegetable to transplant. This is a matter of considerable moment, for probably the only way to raise them here in the North—that is, to get a good crop—is to start them in a greenhouse; then after they have some little leaves and a lot of rootlets, put them out as you do cabbage, tomatoes, etc.

complied something that can scarcely be computed in dollars and cents.

There is one thing I almost forgot in contrasting Ohio with Florida. The stable manure that I have been describing costs here 75 cents a load. In Florida it is \$3.00, and I doubt if you can get any old manure there, such as I have described, at any price. It is all taken up from the livery stable about as fast as it is made. Another thing, this heavy application of manure here in our soil will benefit that piece of ground for several years. Down in Florida the tremendous rainfalls (one inch a day is reported just now) take the strength from the manure by leaching it so that it is good for vegetation for only one season, or the greater part of it. Most people are greatly disappointed when they undertake to make garden in Florida because of the absolute need for a constant and repeated supply of fertilizer of some kind. Coarse stable manure furnishes humus that holds the water; and this is very important both in Florida and Ohio. Old worn-out farms are usually worn out because the humus has been exhausted by repeated cropping, and no putting back.

MORE ABOUT THE DASHEEN, "THE TUBER THAT MADE BROOKSVILLE FAMOUS."

We clip the following from the *Florida Grower*:

But it is not of the beauties of the hammock nor the rolling lands nor the view from the court-house over the surrounding country, worthy of an artist's brush, that Brooksville's fame rests, but upon the dasheen. It's "The tuber that made Brooksville famous," for here it grows to perfection. They cultivate it, cook it, eat it, talk it, and dream of the dasheen. You can't be in Brooksville five minutes and commence to remark upon its beauties and possibilities without some one asking, "Have you ever eaten a dasheen?" And you will be told that your education has been neglected if you have not tasted of this delicacy.

Dasheens do not do well on dry sandy soils, needing a moist soil thoroughly drained, though they can stand flooding once in a while, and seem to do better where this is resorted to occasionally. A low moist sandy soil, well fertilized, capable of irrigation, will produce dasheens; but the yield will be less than that on the hammocks with a clay or limestone subsoil. It is related to the well-known elephant ear (*Caladium*), so common in all our gardens, and any soil that will grow elephant-ears well will do the same for the dasheen.

A few days ago, while our teamster was cultivating the garden, he came up alongside of my two rows of dasheens and stopped his team and looked at me in a sort of puzzled way and remarked, "Why, Mr. Root, what in the world are you doing with those 'splatter docks' growing here in your garden?"

In the fresh-water lakes along close to the shore there are frequently found patches of what we call water-lilies; but the com-

mon people, especially the fishermen, have been in the habit of calling them "splatter docks;" and I remember now that they used to bother us a good many times in trying to get our boats through them. The finest black bass are found hiding along these splatter docks. I have scarcely seen them since my boyhood days, but I remember them as a rank luxuriant vegetation; and when they obstructed the passage of the boat there were often a good many complaints of "them pesky splatter docks." And as these dasheens, when about a foot high, do look very much like splatter docks, it occurs that, like the "elephant-ears," they need lots of water. Mine are doing very much better since I gave them water as well as lots of old well-rotted manure unstintedly. I expect to give soon a picture of them as they grow here in Ohio.

DASHEEN BULBS FOR PLANTING.

When I saw Crenshaw Brother's advertisement of dasheens for planting I wrote them, asking them how they succeeded in keeping the bulbs, say during the summer months. Their reply would indicate that the bulbs can be kept for planting at different seasons of the year very much as we keep Irish potatoes; and this is certainly another thing in their favor. See the following:

Your inquiry in regard to keeping dasheens is at hand. We would say that we have a few bushels that are sound, and are in first-class condition. These bulbs were gathered last fall. We have met with excellent results in keeping these, also small seed Irish potatoes, by making frames with the bottoms out of slats, spacing them by stacking them on top of one another, which leaves plenty of room for the air to circulate. About once a month we have a man to go through them to see if any are faulty. We find that they can be kept at very small expense.

CRENSHAW BROS. SEED CO..

Tampa, Fla., July 11.

Later.—Dr. E. F. Phillips, Apicultural Expert in the Bureau of Entomology, Washington, D. C., has just been looking over the dasheens in our garden, and he remarked that on a recent visit to Porto Rico he found they were there a staple article of food, and he himself is very fond of them. He gave me one important pointer right here. He says they are grown largely on the margin of running water. On each side of a little rivulet, so close to the water that the roots of the dasheen can get right over into it, the rankest specimens are growing. I believe it is known in Hawaii by the name of "taro." Now, in our effort to reproduce it here in our own country, let us remember it needs lots of water.

Dr. Phillips says this vegetable was the principal article of food of the natives before the missionaries commenced their work in the Sandwich Islands, as it was then call-

ed; and he says that, furthermore, even now a large part of the inhabitants, especially the natives, make the dasheen their principal article of food.

On a recent visit to the Philippine Islands he found there also the dasheen or something similar to it, and it was there considered an important article of food.

THE DASHEENS DOWN IN FLORIDA AT THE MIDDLE OF JULY.

My colored man, who is looking after them, writes me as follows:

The dasheens are getting along finely. The younger ones are larger than the older ones. They are a pretty sight to behold.

Manatee, Fla., July 12.

WESLEY WELCH.

Temperance

"WHAT SHALL THE HARVEST BE?"

Whoso shall offend one of these little ones which believe in me, it were better for him that a millstone were hanged about his neck, and that he were drowned in the depth of the sea.—MATT. 18:6.

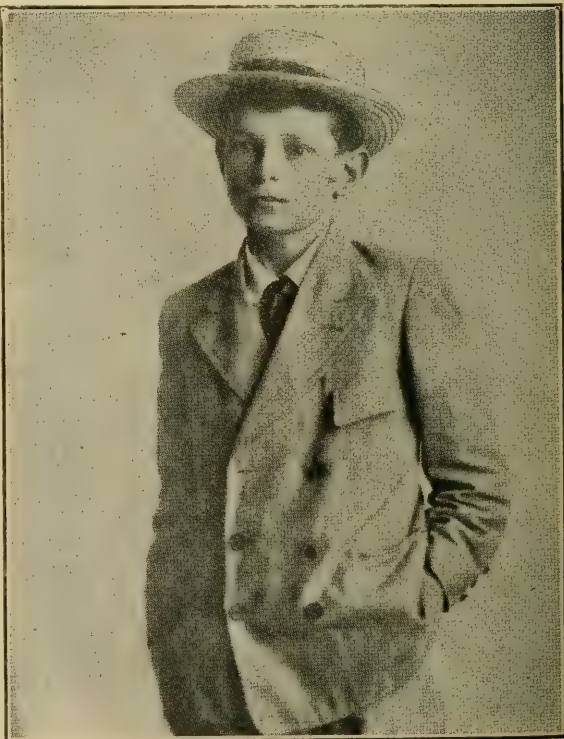
On page 360, May 15, you may remember that one of the friends replied to a question of mine as follows: "No, I do not keep bees. I keep *busy*." I there explained that the above was from L. H. Horton, of Spokane, Washington. It now transpires that friend H. is District Superintendent of the Antisaloon League of Washington, and a pusher; and I am going to tell you *how* he "pushes" things, by giving you three pictures and the printed matter that goes over and under these pictures. Here they are.

Let us look into this matter a little. The picture of that bright boy might be that of your boy or mine. There are thousands like him all over the world. He is innocent and unsuspecting. You can see it in his face. Is there any punishment too severe for the man (or woman) who would deliberately plan that boy's ruin? Such a boy is ready to listen to anybody. If his father and mother are not around, it would not be a difficult matter to coax him into almost any thing. He is too young to discriminate. If he were allowed to pass that second picture, the factory(?) (and may God help us in our warfare against such "factories"), his curiosity would be aroused, and, if invited to taste the stuff they have for sale, many such boys would not even hesitate. The proprietors of that kind of factory are just after the nickels and dimes. "Whisky, ten cents a drink!" You need not say this picture was gotten up for effect. It is a photo of what actually exists. Go into almost any big city and see if I am not right. I agree with you that it is a burning shame that such a thing

should exist anywhere on the face of the earth. O God, help us in our conflict against this terrible agency of Satan.

Now, friends, look at the finished product. You know this is true. Probably there are not as many such as there are samples like the boy. One reason is that they fill drunkards' graves before they get to be as old as this poor sot. Now, in view of all this, with these pictures right before you, with the memory of them in your mind, will your conscience permit you to consider for an instant, voting for saloons, breweries, and such things?

Friend Horton informs us that over a million copies of a poster containing these



THE RAW MATERIAL.

pictures have been printed and sent out to date.

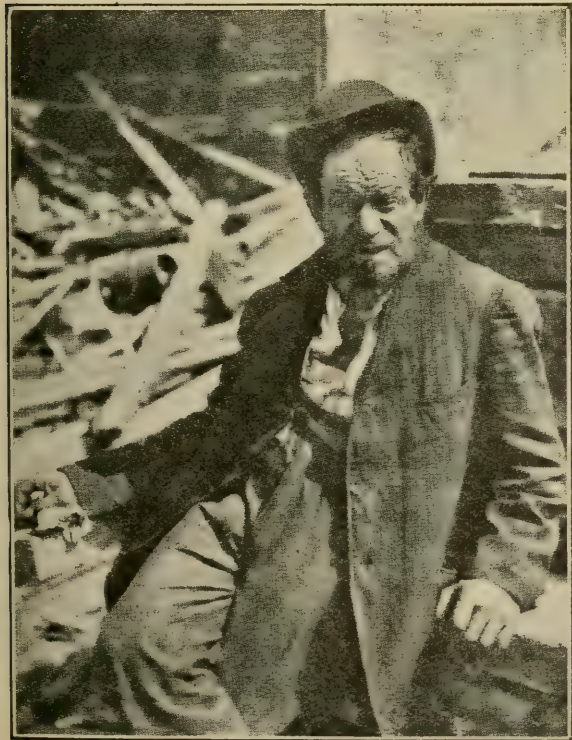
AMEN TO THE DECISION OF THE UNITED BRETHREN. ARE THE OTHER DENOMINATIONS READY TO FOLLOW?

Read the following, which we clip from the first page of the *American Issue* for July 5. Is it too strong or too severe? It is taken from the Bishop's quadrennial address at the General Conference of United Brethren, Dayton, Ohio, May, 1913.



A FACTORY.

What would our Town be like if Every Man Drank as much as the Liquor Dealers would like to have Him Drink?



THE FINISHED PRODUCT.

THE CURSE OF CURSES.

We reiterate, with increased emphasis, our relentless opposition to the liquor traffic. We hold that it can not be legalized without sin. Its only argument is an appeal to greed and appetite. It is in collusion with the white-slave traffic and other forms of evil. Its fruits are cruelty, debauchery, conspiracy, and murder. It is the wholesale despoiler of the race, and is "intoxicated with the blood of the multiplied thousands it has slain." As a rising flood it sweeps away life, property, and fortune. It is in a death-struggle for mastery in politics, government, and society. The church of God dare not yield an iota to its murderous march against humanity. It has no rightful place in our modern civilization. It is doomed. The forces that oppose this gigantic evil are in accord as never before. The saloon must be driven out of business. In the name of God, the church, and humanity, let the next final step be a nation-wide movement to outlaw this traffic in a holy crusade for a saloonless nation and liberated humanity under a constitutional amendment of national prohibition.

TRUMBULL CO., O., DRY.

We clip the following from a letter just received from Supt. Wayne B. Wheeler:

Trumbull Co. doubled her dry majority last Saturday. This was done in spite of the fact that more than a thousand voters had come into the county since the last election, and from Warren to Hubbard the valley

is filled with factories, furnaces, and steel mills, which was a tremendous factor.

W. B. WHEELER.

Later.—From the *American Issue* for July 5 I clip the following in regard to the election in Trumbull Co.:

WETS ASKED PERMISSION TO REOPEN SALOONS, AND BY A DRY MAJORITY OF NEARLY TWO THOUSAND THE DRY MAJORITY OF FOUR AND A HALF YEARS AGO DOUBLED.

The wets have had their eyes on Trumbull for some time. The Youngstown and Cleveland brewers have been urging the local booze-boosters to start trouble. They noted Trumbull's prosperity. They saw that in the four and a half years without saloons the county has grown in population and in material wealth. They noted that business is good, that bank deposits have increased, and that men are spending their money on their homes and families instead of piling up the dollars for the brewers and saloon-keepers.

The wets wanted a share of this prosperity. They said to Trumbull County voters: "Here is our proposition: Let us open saloons, and we will trade some of our dirty dollars for your boys and girls. We will give you revenue, and all we ask is the chance at your wage-earners, and at the young fellows who want to put in a crop of wild oats." And back of these Trumbull County wets stood the outside brewers, their greedy fingers twitching at the very thought of getting into the pockets of the men and boys of the county.

"THE FIRST PLACE A POLICEMAN LOOKS FOR CRIME, AND THE LAST PLACE HE WOULD LOOK FOR VIRTUE."

We clip the following from Mr. Bryan's *Commoner*. What do you think of it?

ON THE WALLS OF A SALOON.

A card bearing the following was posted on the walls of saloons in some of the larger towns in Ohio during the late campaign:

"W. J. BRYAN ON THE SALOON."

"From his speech before the general assembly of the Presbyterian church:

"The saloon is a nuisance. The evil can no more be confined to the building in which it exists than the odor of a slaughter house to the block in which it is located.

"I know, and you know, that they are in league with every form of evil in society. As a rule, if you let the liquor-dealer have his way he will have a disorderly house upstairs, he will have a gambling-den in his back room, and his place will be the center of every sort of evil.

"The saloon is the bureau of information for every sort of crime. It is the first place that a policeman looks for crime, and the last place he would go to look for virtue."

THE WOMEN OF FRANCE—A PLEA IN THEIR BEHALF.

Dear Mr. Root:—You are like the Bible—full of contradictions. On page 707 and in Special Notices you say you plead against invectives and for a more Christianlike spirit; but on page 713 you are proud to give print to your grandson's insults against French women. Surely there are awful women in Paris, and there are awful men, too; and there are both kinds in New York also. I guess there are some in Medina too; but this should not allow your grandson to say that French women are awful. If you knew Paris, Mr. Root, you would know that more money is spent there on vice by foreigners than by French people. Cook's Agency pours by the

carload its tourists into the small and dirty theaters of Montmartre; and those rude old maids, respectable matrons, religious and moral English-speaking people, they go there where no decent French woman would show herself, and at the same time help in supporting vice. Please ask your grandson where he has been in Paris.

Is it Christianlike to insult even the poor women who make a living from vice, from men's vice, when the actual society does not permit them to get decent wages by honest work? They have been thrown into that life either by ignorance or necessity, or lack of education, and for their sins why should scores of innocent men, women, and children perish? If your God, Mr. Root, permits it to happen, then your God is not Christianlike, and I am proud to be—

A FRENCH HEATHEN.

I wish you would print my protest in your paper, but I do not expect you to do so.

Palmarito de Cauto, Nov. 9.

My good friend, I thank you for your kind criticism; but I do not agree with your closing remarks, for I am sure you are not "a heathen" in any sense of the word. Perhaps my grandson was a little too sweeping in his statement, as young people are apt to be, and perhaps it is also true that he had not investigated very much in regard to the state of affairs in our great cities here in America. I am sure he did not intend to say that *all* French women are after the fashion of those he happened to get a glimpse of during his brief trip; and I am glad you have called attention to the fact that the bad state of morals is largely due to visitors, many from our own nation. I suppose you are aware that a great reform is now under way in the United States along the line of the white-slave traffic, and I believe this promises to be world-wide.

We are going to print your letter, and it would have been in print earlier but for the fact that it came here during my absence in Florida. May God help us in our efforts to raise up and Christianize abandoned women in every land.

One more word in regard to your concluding sentence. It is true that none of us can fully explain why God in his infinite love and mercy permits many things to happen, as you express it. He permitted Joseph's wicked brothers to cast him into a pit. God permitted them also to sell him into slavery; and in spite of his good behavior and his faith in God, he was permitted to go down into the dungeon just because he held fast to his integrity; and God also permitted him to stay in that dungeon two or more years, while he, poor Joseph, got no glimpse of what was then before him. Is it not possible that God permits the awful liquor-traffic to curse humanity that the good and capable might learn important lessons that could never have been taught them otherwise? Did you ever think of that?

Gleanings in Bee Culture

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Editorial

THE *Western Beekeeper*, edited by Geo. L. Emerson, has, we believe, come to stay. It is certainly representing the Western producer.

THE MAN WHO INTRODUCED THE FENCE SYSTEM.

ON page 576 of this issue will be found a breezy article by S. A. Niver. He is the man who introduced to the editor the fence system and sections, as used by his brother-in-law, the late Miles Morton, of York State. There is a sparkle of good humor in Mr. Niver's makeup. We are delighted to know that he is now back to his old love, the bees.

THE EDITOR OF THE AMERICAN BEE JOURNAL ON A TRIP THROUGH EUROPE.

MR. C. P. DADANT, of Dadant & Son, editor of the *American Bee Journal*, is now making a tour through Europe to study European beekeeping and the various races of bees. There is, perhaps, no man in the United States who is better qualified to make this kind of investigation. As the French language is his native tongue, and French is universal throughout all Europe, he will be able to make his way everywhere understandingly. The result of his findings will be given later on in the *American Bee Journal*. There is no man better qualified to bridge American and European beekeeping than Mr. Dadant, and our congratulations are extended to our contemporary.

OUR COVER PICTURE.

TAKING the country as a whole, in the localities where sweet clover grows, we think there has never been such a luxuriant growth as there has been this year. The bloom began early, encouraged by frequent rains, and the bees took advantage of it at once. It is probable that there is no great amount of nectar at any one time in the sweet-clover blossoms; for very often, in spite of the abundant growth, the bees do not get very much surplus. In some localities, on the other hand, it yields quite a crop. The chief value of the plant is in supplying enough nectar to keep up brood-

rearing at a time when there is little else the bees can get.

Our cover picture for this issue shows the luxuriant growth of sweet clover along the bank of Rocky River at our "Waterworks" yard, about three miles east of Medina. When all the States become educated to the value of sweet clover, as a few have done, it will no longer be known anywhere as a noxious weed, and beekeepers will reap some of the benefit.

A POST-GRADUATE COURSE IN BEEKEEPING.

J. E. CRANE says, "Inspecting is as good as a post-graduate course in beekeeping," and Crane is right. We have been helping our State Foul-brood Inspector, carrying him about in a machine from place to place. We have learned something about bees and a good deal more about farmer beekeepers that we did not know before. We have seen some of the queer things that bees will do when the owner neglects them and gives them a ramshackled box in place of a good hive. Incidentally we have learned something about human nature, and more about a combination of beekeeping and farming. Sometimes they do not go well together, and at other times they make a splendid combination, providing the women and children take care of the bees while the "man of the house" is in the field. We have run across some delightful farmer beekeepers—some that are clear up to date. They read every thing that is going on with bees; they have all the honey they can eat, and a good deal to sell.

If some of the old-timers think they know it all, let them go out a day or two with their State Inspector, and see if they do not learn something new about bees.

ENORMOUS DEMAND FOR BEES AND QUEENS.

A LARGE number of complaints have come in concerning various queen-breeders, because they have not been able to make prompt delivery on queens. One customer went so far as to say that he wanted Mr. — (one of the most reliable queen-breeders) "shown up." As nearly as we can

ascertain, all queen-breeders in the country have been behind. Some of them are already oversold, and some have declined to take any more orders. The weather this last spring was unfavorable for rearing early queens. It started out in the Northern States unusually favorable. Queen-rearing was nicely started, then there came on a cold spell, chilling the cells and stopping queen-rearing almost entirely.

Another common complaint is that the queens look small and dark on arrival. It is a well-known fact that, when a queen has been deprived of her opportunity to lay eggs, and is shut up in a little cage, and bumped around in the mail-sacks for one or more days, she will shrink up and look very inferior. If a customer will have patience he will find that such queens will, after they get to laying, improve in size and appearance.

INTRODUCING WITH SMOKE; THE PLAN ADVOCATED BY ARTHUR C. MILLER INDORSED BY OUR APIARISTS.

MR. M. T. PRITCHARD, who has charge of our basswood queen-rearing yard, came into our office one day saying he had tried out Miller's smoke method of introducing, and was very much pleased with it. We said to him, "Mell, suppose you write that up." He did so, and here it is:

The article by Arthur C. Miller, on introducing queens, page 370, I consider the most valuable contribution to GLEANINGS that has appeared for many a month. Since reading it I have tried smoking in queens several times under the most difficult conditions for introducing, and found it worked successfully in every instance.

A very strong colony made up entirely of bees that returned after moving several colonies had twice baffled my attempts at introducing a queen by the cage plan. But a queen smoked in at the entrance on Saturday evening was found to have eggs on three frames on the following Tuesday. Had she been successfully introduced by the cage plan she would hardly have been out of the cage by this time. I have introduced into colonies that had been queenless more than 30 days, and in one instance where there were fertile workers. To be able to introduce a queen at any time under any conditions without having to bother with cages and cage candy is an accomplishment worth knowing how.

Medina, Ohio, July 28. M. T. PRITCHARD.

Our Mr. Marchant, who has charge of some 500 colonies in six apiaries, learning of Mr. Pritchard's success, began trying the method. He, likewise, was so well pleased with it that we asked him to tell his experience.

I should like to say I have tried a good many ways of introducing queens, but find none to equal this. I have tried this method on colonies that had queens just removed, up to colonies that had laying workers, and in every case it worked to perfection. I am sure we introduce more queens than any one else, and I expect to use this method entirely.

Medina, Ohio. J. E. MARCHANT.

We have generally recommended the cage method of introducing because it is handy, and beginners are usually successful with it. The veterans will, of course, practice the plan that will give them the best results.

FRAME-TONGS; WHEN THEY MAY BE A NECESSITY.

On pages 573 and '4 we have illustrated two styles of hive-pliers. Those shown on page 574 are very similar to those sold for many years by T. G. Newman & Son during the 70's and 80's. While it is true, as stated in our footnote, they have never been regarded very favorably by practical honey-producers, there are times when they can be used to great advantage. For example, the foul-brood inspector runs across all kinds of hives and brood-frames. Even if he encounters a modern hive with modern frames, there is a possibility that *that* hive has not been opened for several years. In any case, the inspector has a "job;" and sometimes he feels that nothing short of a crowbar and cold-chisel and a hatchet will make the brood-nest available for inspection. An ordinary pair of fingers will fail to remove any brood frame that has been gummed up in the brood-nest for the past five or six years, and a good steel hive-tool is not "in it." A pair of frame-tongs, as shown in this issue on page 574, would, undoubtedly, be of great assistance in affording a more secure grip on a refractory frame.

Of course, if the combs are built cross-wise, as they often are, nothing but a cold-chisel and a butcher-knife can be used; and even then a sledge-hammer or a crowbar might be more serviceable, not to overlook, of course, the always useful and indispensable bee-smoker.

CONVENTIONS FOR THIS WINTER.

If the National Beekeepers' Association could arrange dates for conventions, both State and local, it would make it possible for more speakers to attend. For instance, the editor of GLEANINGS would be glad to take in more of the meetings if the dates did not run so close together. In some cases the meetings are on the same day. Sometimes manufacturers are willing to make exhibits at these conventions. If these exhibits could be sent from point to point, one convention after another in rotation, it would save expense, both in the time of the man, railroad fare, and freight. We wish, therefore, to offer the suggestion that the secretaries of the various associations in the United States place all dates before the secretary or president of the National Bee-

keepers' Association. We feel sure that either one would be willing to arrange a scheme of dating that would accommodate every one.

Aside from the convenience of the manufacturers and editors of the various bee-papers, it would make it possible for Dr. E. F. Phillips, of the Bureau of Entomology, to be able to attend many more conventions than he is now able to do. His superiors would doubtless be glad to send him to a number of important meetings if the expense could be divided up between several conventions.

During the past year Dr. Phillips has gathered a great deal of valuable information; and if some of our important State conventions could secure his presence they would thereby materially increase the attendance. Under the present no-system haphazard scheme the editors of the various bee-papers can attend only a limited number of conventions. We respectfully suggest that President Gates, of the National Beekeepers' Association, take this matter under consideration.

Later.—Just as we go to press we have received a letter indorsing the plan. We will publish it in our next issue.

PROBABLE 50-PER-CENT REDUCTION IN THE TARIFF ON HONEY.

SEVERAL have been asking of late what the proposed duty is to be on honey in the new tariff bill now pending in Congress. We wrote to our Senator, Hon. Theodore E. Burton, and below is his reply:

My dear Mr. Root:—This is to acknowledge receipt of your letter of the 23d inst. with reference to the duty on honey. Under the so-called Payne-Aldrich law the duty was twenty cents per gallon. Under the bill now pending in Congress the duty is placed at ten cents per gallon. I think, from present indications, that the bill will go through practically in its present shape, and thus the duty will be reduced, as you say, 50 per cent.

With cordial regards I am

Yours very truly,

T. E. BURTON.

So far we have refrained from any discussion as to the probable effect the fifty-per-cent reduction would have on domestic honey as it would be difficult to make a forecast. We have not felt nor do we now believe that the proposed reduction is going to affect materially the sale of honey in this country. The West India product is all extracted, and much of it of an inferior quality. It is very clear that neither American comb honey nor table extracted would be affected. The only thing that might happen would be a reduction in the price of American honey for manufacturing purposes; but the production in this country, of this grade, is so enormous that we do not

see how it would suffer by way of competition with honey from the West Indies of the same grade. And even if it did, it will have the protection of probably a cent a pound, which, in our opinion, will be sufficient to protect our American producers.

WIRE FENCES FOR PRODUCING FANCY COMB HONEY.

It will be remembered that Mr. S. D. House, of Camillus, N. Y., has been advocating the Betsinger wire fence or separators for the production of comb honey, claiming that he gets better filling, and practically all the honey fancy. We had some supers made up on the Betsinger plan, and turned them over to our neighbor Vernon Burt, of Mallet Creek, about two years ago. Well, he tested them out, but, strangely enough, his bees built the combs against the wire and all through it. The honey was spoiled. The next year the results were not much better. But this year he told us he had some of the prettiest comb honey he ever produced. He showed two supers produced by the Betsinger wire separators, and it was about the prettiest honey we ever saw—all fancy, and every section perfect.

There is a great difference in bees. Some strains will build burr and brace combs in their brood-nests galore, and others will build very few. The former will build their nice comb honey up against the fences. One beekeeper remarked, "The best way to treat such bees as that is to pinch the head of their queen."

Well, it is possibly true that, when Mr. Burt tried out the Betsinger plan the first time, he was using bees that had a fondness for building burr and brace combs. The last time, he used a strain that is free from it, and he has secured beautiful comb honey.

A RETROSPECT; THE EDITOR WHO KNEW IT ALL.

WE have been furnishing editorial matter for this journal since 1885—28 long years; and yet we are glad to say that every day we find something new to learn, especially when we rub up against the bees constantly.

Some 25 years ago the editor of one of our bee papers, inclosing an editorial just before he discontinued the publication of his paper, made a statement to the effect that the art of keeping bees had reached its zenith. There was nothing more to learn, no improvements to make; and therefore he was about to discontinue the publication of his paper.

Those of our readers who have taken a bee journal for the last 25 years will probably take issue with the now defunct journal. No wonder it died. Let us see what has happened since that time:

The evolution of the large power honey-extractor; automatic reversing of combs; the steam uncapping-knife; the melting of cappings as fast as they come from the knife, and the separation of the wax automatically; the honey-pump; simplified and improved appliances for the production of comb honey; cut comb honey; bulk or chunk comb honey; the bee-escape; queen-excluders; new and better methods of dealing with the swarming problem; specialist beekeeping—that is, where one man is owner and proprietor of from five hundred to several thousand colonies; syndicated beekeeping, where great corporations in the tropics are producing honey almost by the shipload; the development of new bee territory; migratory beekeeping; shipping bees without combs; bee-disease laws in two-thirds of the States; apicultural stations; government apicultural work; back-lot beekeeping; pure honey in nearly every State in the Union, backed by federal and State pure-food laws, and last, but not least, millions and millions of dollars' worth of honey produced annually where only thousands were produced when that editor who knew it all said we had reached the zenith of honey production.

THE VENTILATED BEE-ESCAPE BOARD.

WE would call attention to an article by Mr. Arthur F. Hodgson, in this issue, page 577, on the subject of ventilated bee-escape boards. While the idea is not new (see GLEANINGS for 1892 and 1893), it is, nevertheless, good. There are two important advantages in the ventilated escape-board. One is the elimination of all possibility of the bees suffocating, and melting down the honey; and the other, having the honey warmed for the extractor as well as free from bees. In regard to the first named, a solid board escape, if it should clog up during hot weather, may kill all the bees above the super; and the intense heat developed by the suffocating bees will melt down the honey. The use of the wire cloth, as shown in this issue, permits free ventilation; and should the escape fail to operate for any reason, no harm would be done, either to the colony or to the bees.

The second reason, warm combs for the extractor, is very important, as every practical extracted-honey producer will recognize. Cold combs in cool weather are very hard to extract clean. In fact, it is almost impossible to get them clean. But combs

that have the heat of the cluster of bees, 98 Fah., will extract very readily.

A great many have objected to the use of bee-escapes on the ground that, after the supers are deserted, the combs are cold; and this would be true of solid board escapes. For that reason many large honey-producers have preferred to brush or shake the combs. If new honey is coming in at the time, shaking will scatter much of it on the ground and on the bees. Nor is this all. The bees crawl all over the ground, get under the trousers, and, of course, the operator is stung more or less. If the honey-flow ceases, there is danger of robbing; and last, but not least important, the bee-escape saves all interruption to the colony. Shaking or brushing stops work, and some little time will elapse before the bees get down to normal again. From every point of view the bee-escape method of freeing the bees from the comb is greatly to be preferred, providing the objections to such methods can be eliminated, and the Hodgson plan, as shown in this issue, does it.

HONEY-CROP CONDITIONS AND PRICES.

THE mass of reports that have been received from the central States shows that it has been unquestionably a good year for the production of clover honey. The peak of the yield seems to have centered down through the Ohio Valley, including Indiana and northward into southern Michigan and southern Ontario. Generally speaking, the yield decreases from that area, either east or west, north or south; but there are exceptions, for even in favored portions of the clover districts there have been almost complete failures; and in regions where the clover yield has been light, there has been an occasional record-breaking crop. In most of the New England States the season has been, perhaps, below the normal. In Eastern New York, Pennsylvania, and New Jersey the yield has been fair to poor. In parts of Illinois there have been good and poor yields. The same is true of Minnesota. In eastern Wisconsin the season has been good, and in the western part poor. Iowa seems to have had a fair yield in most places.

Taking it all in all, the aggregate production of clover will be above normal, for there have been record-breaking yields in favored localities. The price of clover extracted will perhaps be somewhat easier; but on fancy and No. 1 comb the prices ought to be up to normal, for we have never yet seen either too much fancy or No. 1 clover comb honey.

Very little basswood honey has been re-

ported anywhere in the clover belt, or elsewhere for that matter. This means that the clover this year will be all clover.

Our Mr. L. W. Boyden has just been making a trip through the West, looking up the honey situation. His report, in brief, is as follows:

My trip through the West was made in rather of a hurry, as it was necessary that I return here at an early date. At the same time, I visited quite a number of the larger producers in the Middle and Western States, and I am of the opinion that the honey crop will be larger in Colorado, Wyoming, Idaho, and Nevada than it has been for two or three years past.

Nevada and Idaho had heavy rains during July, which is unusual for that territory; but since then the weather has become very hot, thus insuring a heavy honey-flow.

The writer visited a number of very good localities in the West which are not at present being used by beekeepers; and if any one is considering moving westward, and desires information with reference to certain localities, I shall be pleased to give him what little information I have.

There are several new government projects which will be opened in the near future. This will give additional acreage for bees. Many ranches in certain sections are raising seed from alfalfa, alsike, and sweet clover. If one is fortunate in getting near one of these places he will be assured of a continuous honey-flow throughout the summer season.

The Ontario Beekeepers' Association has sent out a very complete report of honey-crop conditions. The average crop is 63 lbs. per colony, largely in the southwestern counties. The eastern counties have practically no honey; but the total yield so far reported is 1,618,000 lbs. from 543 beekeepers out of 700. In the matter of crop reports, our neighbors across the line have it down to a fine science.

The season in Southern California has been poor. In the northern and central portions of the State, conditions have been better. In Northern California there will be about half a crop. In the Mesilla Valley, New Mexico, the year has been a poor one. Taking it all in all, the failure of the crop in California and New Mexico, and in some parts of the Western States, will make Western honey, perhaps, a little scarcer than usual; and this shortage will have a tendency to make prices on Eastern honey more stable. Just what the real effect is going to be, remains to be determined. But certain it is that the Western beekeepers should make an effort to sell west of the Mississippi as far as possible.

There will be danger this year that a large number of beekeepers will dump their honey on the market all at one time. A concerted action would avert this trouble, and the large producers would do well to get in touch with other large producers and associations to avoid a congestion of the market in any one point.

TELEGRAPHIC REPORTS FROM COLORADO.

We have made arrangements with Mr. Frank Rauchfuss, Manager of the Colorado Honey-producers' Association, to furnish crop reports by wire on the 9th and 24th of each month. Mr. Rauchfuss is in the heart of the alfalfa country, and has unusual facilities for getting at the facts. His first report is as follows:

On the eastern slope of this State conditions have improved the past two weeks; flow has been from fair to good in most localities; quality of honey fine; excessive swarming will cut down yield; western slope reports similar crop conditions.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Frank Rauchfuss, Manager.

Denver, Aug. 9.

THE IMPORTANCE OF ACCURACY IN MARKET REPORTS; PRICES FOR THIS YEAR.

ELSEWHERE in this issue we endeavor to give an unbiased and accurate report of crop conditions based on reports of our men in the field, and on letters received from our correspondents and customers all over the United States and Canada. Our facilities for obtaining this information are the best in the country. We have proceeded on the assumption that *exact conditions* must be stated. If, for example, the yield has been heavy in certain localities, that fact should be presented. To hold it back or ignore it with the view of keeping up the market would be a serious mistake. The effect could be only temporary at best. In the end, as soon as the honey began to be dumped in the great centers, the market would begin to tumble, and the momentum thus acquired in the tumble would follow with a crash. It is much better to have the market a little easier, *and hold it at that point*, than to have it take a sudden drop. At present we do not think that prices, except on clover extracted, and possibly on alfalfa extracted, should be below normal; and even these honeys in the liquid form should sell for nearly if not quite what they sold for last year. In view of the partial failure of honey in the South and Southwest, in California and the eastern tier of States clear up into New England, and the fact, too, that clover this year is strictly clover, and not a clover and basswood mixed, should have a tendency to hold prices up. A pure clover will always bring a better price than clover and basswood mixed.

SOME REMARKABLE TESTIMONY SHOWING THE VALUE OF BEES IN FERTILIZING THE BLOSSOMS OF FRUIT-TREES.

In the *Country Gentleman* for May 24 appears an article by William Harper Dean telling of the remarkable success of three

brothers in growing and storing and marketing their fruit. The story is as interesting as the Arabian Nights, and the feats accomplished quite as wonderful; but this story, unlike the Arabian Nights, is true, as it relates *actual* performances. Mr. Dean goes on to recite the early struggles of the father of the three brothers who have built on the splendid foundation he laid; of how this father in his younger days had a vision of growing fruit on a large scale; of the heroic struggle he made; of how he began and failed; lost every cent he had; of how he worked out to make more money, and started again and failed. Most men would have been discouraged and given up the job, feeling that he was a miserable failure; but not so with John Repp. He went at it again.

In the mean time he was raising a family of three boys, and was lucky enough to have a wife who had the same kind of pluck he had. Of course these boys were brought up right; that is, they learned how to work. They profited by their father's early experience, by his repeated failures and occasional successes. The father struggled on; and just as he was on the point of realizing the vision of his early days he died. Had it not been for the indomitable courage that appears to have been bred into the boys, this story as it appears in the *Country Gentleman* would never have been written. But the boys were made of the same stuff as their father. That dearly bought experience that spelled apparent failure for the old gentleman did not come amiss. At all events, the boys are now proprietors of an 800-acre fruit farm, mammoth cold-storage plant, where ten thousand bushels of fruit can be stored and kept till the market is right, and an office where the records and the business of the concern are taken care of.

Albert Repp is the grower who is on the job from sunrise to sunset. Charles Repp is the man who keeps the fruit in that 10,000-barrel storage-plant. Joseph Repp, in Philadelphia, is the merchant who sells the stuff. All three make up what is known as the Repp Brothers, located in Gloucester Co., N. J., and a splendid working team they are.

Well, what has all this to do with bee-keeping? Read the following extracts from the interview Mr. Dean had with Albert Repp, the grower:

I had walked the mile or so from Pitman to seek out this Albert Repp who grows the things for Repp Brothers, and found him returning to his home from overlooking the spraying of certain blocks of trees in the orchards.

"Too windy," he remarked snappily. "We'll stop

spraying until the air steadies a bit. Yep, spraying is no fool's job—it's got to be done right or not at all. We're spraying for peach scab now, and have already been after the codling moth in the apples. Look at the bloom on those pears. Isn't it a dandy?"

It was. I looked through a fairyland of blossoms on correctly pruned trees, in a weedless, grassless, thoroughly worked soil covered with shedding blossoms like confetti after a carnival. It was good for the heart to see such a sight.

MUST HAVE BEES IN AN ORCHARD.

"And if crying would do any good," mused Albert Repp, seeming to forget business for a moment as he, too, gazed at the sight, "I'd cry an hour to bring out the sun so the bees could get to work. It's too cool for them to-day."

"You have an apiary in connection with your farm?" I ventured.

He looked astounded at my question. "Of course! Couldn't do without them. I never take a pound of their honey. All I want them to do is to pollinate the blossoms. I'd as soon think of managing this orchard without a single spray-pump as to be without bees. I've got fifty colonies now, and am building up the apiary each year. There they are—look at them!"

The hives stood in perfect rows, as white as the blossoms above them. But there seemed to be a superabundance of bees, I thought. I mentioned this.

"Not with 450 acres of orchard," he explained: "You see we've got bearing orchards of apples, peaches, and pears, with many varieties of each. Now when you've got a new variety of one of these blooming while others are just budding, it gives the bees and the spray gangs all they can do to keep up with them."

Beekeepers would do well to cut this out and paste it in their honey-houses, or at least put it where they can bring it to the attention of farmers and fruit-growers in their vicinity. Those who have a scheme of outyards should hunt up the fruit-growers, and see if they can not make some arrangement whereby the fruit-growers will ask to have the bees put on their places rather than compel the beekeeper to *pay* for the privilege. For example, at one of our outyards a few behind-the-times grape-growers have made a protest that our bees will damage their grapes. If these fellows could know what these Repp brothers (and we will see that they do) are doing it might change their opinion.

This article is so interesting that we suggest that the readers of this journal hunt up a copy of the *Country Gentleman* for May 24, from which we have made the above extract; and if you can not find one you had better send to the Curtis Publishing Co., Philadelphia, inclosing ten cents for a copy. You had better get it, even if it costs a dollar. It is worth any man's while to read the early struggles of John Repp, and see how when what appeared to be failures spelled the biggest kind of success for the boys who took hold of the plow-handles when the father, possibly worn out, was stricken by death. Such a story should be an inspiration to any young man, especially if he has met with some reverses.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

BEE sugar has its certificate of character, p. 398, but I'd feel surer about it if the *British Bee Journal* would endorse that certificate.

P. C. CHADWICK, your head's level on the sugar question, p. 404. I suspect there's many a beekeeper thinks he's making money by feeding sugar when he's losing.

HONEY-PLANTS luxuriant this year. Plenty of white-clover blossoms an inch in diameter, with stems more than a foot long, and one dandelion stem I measured was 30½ inches long.

LET me endorse the use of dummies recommended by G. M. Doolittle, p. 442. I have some just such as he describes. Others, instead of being an inch thick, are ¾ thick. These I like better, although it requires a few more of them. They are easier to handle if an inch shorter than the frames, and seem to work just as well.

MR. EDITOR, likely enough you are right, p. 481, that in grading section honey more than two different weights are needed. For the sake of illustration, let us suppose that the three weights needed are 12, 13, and 14 ounces. My idea is that there must be three different scales—not one pair of scales capable of weighing all three weights, but three separate scales, one weighing 12 ounces and nothing else; another 13 ounces, and another 14 ounces. The simplest possible arrangement will answer—just a bar with a weight on one end and something to lay a section on at the other end. You see it would take too much time to have scales that would have to be changed every time a different weight was needed. And surely a balance weighing only one single weight could be made for less than one weighing different weights. [Having three scales would be more expensive and more complicated than having one pair of scales that would instantly record 12, 13, 14 ounces, or any other weight at a mere glance. We do not believe there are any scales on the market such as you have in mind; and the demand for them would be so limited that the cost would be prohibitive. The only thing to do is to take what is already on the market and make the best of it.—ED.]

MR. EDITOR, let's see if we can not come to terms about that winter-nest business. You ask, p. 482, that I shall not confuse outdoor and indoor wintering. I recognize that outdoor wintering is under discussion, and not only outdoor but Canada outdoor; for if you go far enough south, where is the difference between outdoor and my cellar?

All the same, if a cluster of bees in cellar can hang below bottom-bars, what reason is there that they can't do the same outdoors? You are entirely right in thinking that solid slabs of honey allowing layers of bees only ¼ inch thick will not do. Even in cellar I should expect ¼-inch layers to perish. But a 2-inch layer is another story. With a 2-inch space under the bottom-bars (a deeper space might be better), allowing the bees to cluster clear down to the bottom-board, there ought to be no trouble about their keeping one another warm. I wonder if you've thought of this: Solid slabs, allowing ¼-inch layers of bees *only*, are bad; empty combs are bad after the same kind, but much less in degree; the ideal is a solid cluster of bees with nothing interposing, directly under a solid mass of honey. And this refers to the severest climate outdoors. [When we speak of outdoor wintering it would, perhaps, be well to bear in mind that it means all degrees of temperature—high winds, no wind, wet snow, and light snow. We do not believe it would be practicable for a cluster to winter under the frames for outdoor wintering. Even a winter with a temperature of only 50 degrees would drive the bees up between the frames. And when it got down to zero or even below, a cluster in front of the entrance on a level with the bottom-board would freeze to death. On the other hand, in a cellar temperature anywhere from 40 to 60 degrees, at either extreme a cluster could be maintained below the frames. A winter nest for cellar wintering is not important; but we believe it is vital in outdoor wintering. We should expect, in our locality at least, that a cluster of bees would not stay in the space between the bottom-bars and bottom-boards in outdoor wintering, but would move up three or four inches on the combs. As the winter progresses, the winter nest would move upward with the bees; then move backward to the back end of the hive. That is precisely what takes place in our outdoor-wintered colonies. The writer has opened up hundreds of colonies at all times during mid-winter; but we have never yet found a cluster below the frames. We should like to know if there was ever a case recorded of that kind.]

In early fall it may be practicable to give a colony nothing but solid combs; but let that colony have its own sweet will and it will soon make up a winter nest just over the entrance and about two inches above it, in our locality. This would be during November and December.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

The honey crop in this section will be light, owing to severe drouth. I hope it may be better in other parts of the State.

* * *

This year I have used one-piece sections for the first time. Their only fault so far has been that most of those filled with honey appear to be a little diamond-shaped, or not quite square.

* * *

"Once you have foul brood you always have it," says E. D. Townsend in the *Review*. Yes and no. If you are a shiftless, thriftless beekeeper, yes; and if you are a worker and pusher, and you have a fairly good foul-brood law, I say no.

* * *

Mr. Chadwick, of California, on p. 250, April 15, refers to the ignorance of beekeepers. Inspecting is as good as a post-graduate course in beekeeping, and I think it is better. The inspector will learn a great many things not found in the books or journals.

* * *

In Mr. E. S. Miles' article on feeding back extracted honey for finishing sections, p. 415, June 15, he says that in two or three weeks' time between clover and heartsease he usually gets from 15 to 25 supers finished per colony. This would be more than a super a day. Is not there some mistake about this?

* * *

Dr. Miller, you say, p. 418, June 15, that if you find a colony needing treatment, if you wish to prevent swarming you remove the queen and kill all the queen-cells, and again in ten days kill all queen-cells and introduce a laying queen. Now, don't you sometimes get a young queen hatched in ten days that will make you trouble?

* * *

It is undoubtedly true, as Mr. Doolittle says, p. 405, June 15, that in an exceptionally good flow of honey there would be a waste of wax where foundation is furnished so as to fill sections with it, with the result that the foundation would not all be drawn out. But in practice I find such occasions very rare, while the necessity for full sheets of foundation in the sections in order to get them well filled with combs and honey is a constant factor in the successful production of comb honey.

* * *

Mr. Byer refers on p. 412 to the pussy willow as credited with not yielding honey.

In this locality at least, this is not true, as it produces its seed on its pistillate plants, which produce no pollen, and must be visited by bees after having visited staminate flowers in order to carry the pollen. Honey would be necessary to attract the bees to these flowers. Mr. Doolittle may have noticed bees working on the staminate flowers, and have drawn his conclusions from the fact that the bees got no honey from them, and failed to notice them when at work on the pistillate flowers.

* * *

IS ALFALFA POLLINATED BY BEES?

"Is alfalfa pollinated by bees?" is asked on p. 267, April 15, with facts given in answer to the question. A year ago, while in Washington, I became very much interested in the experimental work of the Department of Agriculture in the introduction and also the production of new varieties by hybridization of colonies. The superintendent, whom I looked up, said that I might make some inquiries, gave me to understand that honeybees are of little or no value in the fertilization of alfalfa, as they are unable to "trip" the flowers. He showed me a large number of hybrids, one of which is likely to prove of great value to the farmers of the country. He told me of varieties that are likely to prove hardy even in the climate of North Dakota.

* * *

I found a beekeeper two years ago among whose bees there was some disease; but it was too late to treat them. I went again last spring, and with him opened every hive and showed him all about how to treat the disease. Again, this spring, I tried to find him to look over the yard; but when he found I wanted him he slipped away. His yard was one of the most slipshod I ever saw, and I could not blame him. Well, nearly half of his hives contained disease.

I went to visit another beekeeper who had a badly diseased yard two years ago. He met me, his face beaming like the rising sun. "I want you to come out to see my yard of bees," said he. "I have got the prettiest yard of bees in the county," and I want you to look at it." The hives were all painted, and every thing was neat and trim.

"Got any foul brood yet?" I inquired.

"No," said he; "I have gotten rid of all of it."

Of course he had. It doesn't stay with *such beekeepers.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Some feeding has already begun in a small way, but will not open up in earnest for a few weeks.

* * *

Pickled (or sac) brood seems to have had quite an inning this season. Many reports have reached me of the prevalence of this disease over most of the southern part of the State.

* * *

I have lost several letters containing stamps for reply, among which was one from a gentleman in Nebraska, another from a lady in Washington or Oregon, and another from a lady in Banning, Cal. These parties will do me a favor by writing again, and I will try to give them the desired information.

* * *

July 26, fog and cold is the program at this writing, with some rain in the foot hills and mountain regions. I have never seen a season before with so much fog and cloudy weather in midsummer. To-day the temperature has been 69 at the highest and 59 at the lowest. Last week we had a rain, and for the past two weeks we have had regular winter weather while we were reading daily of the heat prostrations in the East. I believe that, if the season had been moist enough to produce a honey crop, there would have been some *beekeepers* prostrated because of the time that would have been lost by the bees on account of the cold cloudy summer.

* * *

I have had more trouble this season introducing queens than at any former time within my memory. Last year I removed the old queen and placed the introducing-cage with the new queen in the hive at one operation, letting the bees release her at will, and I did not lose a queen. But this season I found that the only safe plan has been to make the colony queenless until the cells are well advanced, then to cut off the cells and give to the colony the cage containing the new queen, to be released by the bees. I am completely at sea as to the reason for the failure of the first plan, conditions being almost identical with the conditions of last year at introducing time. Some queer things happen at times in this line. Last spring, while working at the apiary with Mr. Byron Crawford, my helper, in some way we lost a queen out of one of the many hives we had handled. There was a question as to what to do with her. Crawford wanted to roll her in honey and put

her in a fertile-worker colony, so I consented, and he did so, with the result that she was cleaned up and went to work.

* * *

In reading the reports of crop conditions in the July 15th issue I notice that in some places the honey crop was cut short by two or three weeks of dry weather in the white-clover belt, and I know full well what that means to the eastern beekeeper from past experience of my own. In this part of California, if we have had a heavy rainfall through the winter and up to the middle of April we pay no attention to two or three weeks or that many months of dry weather. The last rain we had in 1905 came the first of May, yet every thing yielded in its season. We extracted 30 cases from 110 colonies September 12. They filled full again before winter; and the way they came out the next spring with hives full of bees was pleasing indeed. Give us plenty of rain in the winter and we would, but for the cold foggy weather when the honey-flow is on, be ready to join the "Don't Worry Club" for a while.

* * *

Recently I made a trip into the edge of the mountains to visit a friend. During my stay I discovered a new-style "let-alone hive." It was, as I remember, a soap-box into which the bees had been dumped with some thin boards covered over the top, on which was a rock of some size. The entrance was two auger-holes, but most of the bees were going in and out under the cover boards. I concluded to make an examination, so I approached the hive as I would one in my own yard. I had reached a point about six feet from the hive when I decided to make a hasty retreat. I turned my head in time to get my eyes out of the way, but the back of my head was about as full of bees as my hair would hold. I let them alone, and have been wishing ever since that I had them where I could spend about fifteen minutes every day smoking them. There is no question in my mind but that bees get used to having people around. I have hives within 15 feet of my back door-steps, around which my children play day after day, and they rarely get stung. If I bring in a colony from the apiary at any time, it is always necessary to caution the family to go easy around them until they get used to seeing us pass to and fro. This hive I have just spoken of was in a remote place on the farm, and the only thing in the bee line to be found.

Beekkeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

A "FIGHT" FOR NET-WEIGHT PACKAGES.

Much honey is being sent to market just now in receptacles that do not hold the stipulated weight as given on the shipping-tags and as indicated on the invoices sent by the producer to the buyer. I question whether this is right in the first place, and whether it is a safe plan to follow. It must be only a matter of time when the law governing the proper weight of the contents of a package will be looked after by the pure-food authorities, and it seems to me that it would be better if beekeepers would remedy this matter before any trouble comes.

One element of unfairness is that some of the larger producers are required to put up their honey in net-weight packages, while others do not do so. The extra weight over the short weights of many of the smaller producers is a big item to us who ship from 70,000 to 100,000 pounds. While it is easy enough to find buyers for a small lot of honey here and there to take care of quite a number of these short-weight lots, yet it is a much greater item to dispose of big amounts of honey direct to a few large buyers who maintain that they must require full-weight packages.

I am aware of the fact that a few shippers do oppose our "fight," as they term it, for net-weight packages. We have been assured by several of them that they agree with us that we are right in our efforts, and that they will immediately step in line when the change to net-weight packages is obtained. In a joking way it was asserted that I was bringing a great hardship on the numerous beekeepers who were making a practice of shipping short-weight packages year after year. But to be fair in the matter, the only remedy would be to settle upon a full net-weight package all around. And it is to be hoped that this trouble will be remedied once for all time when our next year's honey-shipping season opens. Let's have a fair and square deal all around.

* * *

BEEKEEPERS, GET TOGETHER MORE!

Never before has there been the necessity of beekeepers getting closer together for the discussion of their welfare, crop results, and marketing, than this year. There seems to be very little effort on the part of the great number of beekeepers to strive to ascertain the crop conditions and the price at which honey should be sold, early in the season, so that the crop may not be sold too low. There is no reason at all, in my mind, why the Texas honey crop should not have brought at least half a cent per pound more

than it has brought. The entire Texas crop is a short one, and the demand has been most excellent. Besides this, the quality of the honey was better, as a rule, than last year. All in all, it should have brought a little better price than last year, because it was worth more, and the demand for it at the higher price was there. I know this from the simple fact that I could have sold any quantity of honey at the higher price if I had had it, and that, too, in spite of the lower prices that were maintained by others who market a great deal of honey.

The unfairness of selling lower than the price that ought to reign is very annoying to the beekeeper who is striving to maintain good prices, when some of his customers complain that his price is half a cent or a cent higher than the price at which somebody else is now offering his honey. Especially is this annoying when such a customer has already placed his orders for the year, and more so if this customer has been one of long standing, buying a great deal of honey year after year. In a few instances I have been required to cancel the orders, as I have made it a rule not to come down with the price that I found, through careful study and investigation, was the fair and proper one to be maintained.

Of course, it is hard to give up an old customer, and it is brought about only by the beekeeper who not only fails to recognize the price that ought to be maintained, but who is only too ready to plunk his crop on the market at a lower price in order to get rid of it. The jobber and the retailer get the benefit of this lower price, we have found, in that the retail price is about the same whether the beekeepers get half a cent more or that much less than the general market price. The loss to the beekeepers of Texas, on the other hand, is enormous. Half a cent per pound added to the price of all the honey that is sold throughout a single honey season amounts to a great deal. And this loss is occasioned by no other reason than the lower level set by the careless and the ignorant beekeeper.

Therefore it is high time that the beekeepers should get together and discuss these matters. It is not actually necessary to organize the beekeepers into a selling organization at the start, but frequent meetings, or even visits, among the beekeepers of every beekeeping center, for the discussion of crop conditions, and the prices that ought to be maintained, in accordance with the prevailing crop conditions and the market, would help a great deal.

Conversations with Doolittle

At Borodino, New York.

QUESTIONS ANSWERED.

A correspondent writes, "Did you read on page 503, GLEANINGS for July 15, that the first queen-cell is 'likely to hatch on the ninth day from the time the prime swarm issues'? Is that correct? From my observation I find that, as a rule, the prime swarm issues with the sealing of the first cell, and also that, as a rule, all queens emerge from their cells in from seven to seven and one-half days after the cells are sealed over. Also that, when every thing is favorable, the second swarm, or first after-swarm, issues on the ninth day after the first or prime swarm. What has been your experience?"

If I am correct, it was Moses Quinby who gave the rule that three days after the egg is laid in the queen-cell this egg hatches into a minute larva. It is fed by the nurse bees for six days, when the cell is sealed over. Seven days after the sealing of the cell the queen emerges; and two days later, when every thing is favorable, and an after-swarm is desired by the bees, the first of the after-swarms issues. That is to say, where the prime swarm issues with the capping of the first queen-cell the first of the after-swarms will issue nine days later. In the development of brood, and in all of this swarming matter, cool, rainy, bad weather, retards; and hot pleasant weather, with a good nectar yield, accelerates. But the data given will be found accurate enough for all practical purposes. And my forty-five years of experience has corroborated and proved that Quinby was correct. Of course, in my later years of work with the bees very few colonies have been allowed to have their own way in this matter of swarming; but the few that have thus been allowed have proven that bees swarm very much in this twentieth century, as they did half a century ago, when Quinby was conducting his experiments and observations.

QUESTION NO. 2.

"A swarm came out one day, clustered, and was hived. In the afternoon the bees came out in a straggling swarm and went back to the parent hive, leaving a bunch of bees about as large as a teacup. These remained a day or two, when they swarmed out and clustered. I found the queen with them. Why did most of the bees leave their queen and go back?"

The above is one of those perplexing occurrences which occasionally take place in a large apiary where natural swarming is allowed. The general cause is, that a few

strange bees attach themselves, cluster with the swarm, or go in with the swarm when the bees are being put in the new hive. And because of the presence of the strange bees, the bees of the swarm, or a small portion of them, ball the queen either for safe keeping or for some other purpose. When the queen of the newly hived swarm is thus balled, the bees seem to think that they have lost their queen; and after vain attempts to find her in or about the hive they begin returning to the parent hive, going a few at a time. It sometimes takes the larger part of an hour for all the dissatisfied ones to return. But there are always left from half a pint to a quart of those in the ball, and those near enough to realize that their queen is there which do not return. At about this stage of the proceedings, good common sense seems to take possession of those which remain, and the queen is allowed her liberty, when, if nectar is coming in, they go on and do the best they can at making a colony; or if a bad spell of weather follows, and they are likely to starve, they will swarm out. If, after they begin to return, they are stopped from going home, they will try to go into other hives.

In this way I used to find that a large proportion of them were killed. Finally I learned how to keep them in the hive where I had put them. When I found a newly hived swarm in agitation about the entrance, with a few bees returning to the parent hive, I would open the hive containing the swarm, and, finding the ball of bees, smoke them till they released the queen. She was then placed in a long wire-cloth cage which would reach clear across the frames. After closing the hive, an old bag or cloth of some kind was thrown over the top of the cage and frames as a temporary affair. A hum of contentment was always the result. As the bees had access to the queen between every frame-range they all settled down to quiet and work, the same as if the queen had never been balled. The next morning I would release the queen, remove the cage, put on the supers, and all would go well. At first, when hunting the queen I would put her into a common small cage and hang this cage by means of a wire down in the center of the hive, where no combs or frames of full foundation were used; but in about half the time this would not satisfy the bees. They would show their dislike by balling the cage so that the desired results would not be attained.

General Correspondence

IMPRESSIONS AFTER ONE YEAR'S EXPERIENCE IN BEEKEEPING

BY ANDREW J. MONTGOMERY

Through no plan or preference of my own I became a beekeeper in a small way. Some months before, inflammatory rheumatism had sent me to the hospital. There the "hot air" treatment was successfully given; and when I returned the rheumatism was gone, for the time being at least. That fall two men in my congregation (I am the pastor of a suburban church) made me a present of a colony of bees. Antecedently I had no more use for bees than for rattlesnakes, and would have given both the equal courtesy of keeping at a safe distance. But with a hive located on one's own back lot he is confronted with a condition, not a theory. Fortunately, winter was at hand, and that gave time to make the necessary mental readjustments. Several times during the early winter I observed the bees taking a flight, but it was done in the same manner Moses saw the land of promise—afar off. When spring came, one of the donors opened the hive and initiated me into the mysteries of caring for the colony of bees. The first year was successful. I have three colonies now, and secured 72 sections of honey. That is good enough for a beginner.

The first year taught a good many lessons. Some of these, no doubt, will be modified to a greater or less extent with more real experience. But there is a vividness about first impressions which rarely ceases. It is said that, if a man gets printer's ink well rubbed into his hands, he is never able to wash it off. Is not the same true of beekeeping? Can propolis ever be removed from the hands, especially if one has been inoculated, in a generous fashion, with the virus of bee-stings? There is a quality of fatalism about the business. Whoever would not be a beekeeper had better never allow himself any experiments with the art. The disease of melissitis (peace to the shade of Noah Webster) is in most cases incurable.

For the ordinary professional man the care of bees ought not to be despised as a form of health insurance. The mental relaxation, the employment of a different set of brain cells, and the attempt to solve the hundred and one different and also difficult problems which arise during the brood and honey season are a perfect God-send to the man the greater part of whose working hours is spent in the office. I have some

friends who are physicians who sniff when the sting cure for rheumatism is mentioned. May be they are right. But since I have been stung generously by the bees there has been no recurrence of the dreaded rheumatism. I notice that many of my beekeeping friends are in the habit of saying that a nervous person ought not to go near bees, nor should such a person ever try to take care of them. It occurs to me that the nervous man is the very person who should learn to handle bees. He is most likely to learn his lost art of deliberateness, which is the secret, very largely, of self-control.

The mode of life of a colony of bees is a first-hand experiment in socialism. They have the social sense developed to the last degree. They have the community sense in an exaggerated form, so that the self sense is altogether lost. Therefore I was intensely interested last fall in watching the outworking of some of their socialistic principles. First, I saw young husky workers drag out bees that had grown gray in the service, figuratively; summarily eject them from the community, and leave them to their fate, which was death. Then I noticed the fate of the drones. A small worker like a little tugboat would appear on the landing-board, hitched to the wing of a big drone, and headed out. Well, that is not the spirit of Tennyson's "Crossing the Bar." The bees have relentlessly followed socialism to its logical outcome; and that is, the destruction of the non-producers. After my first summer's experience with the bees I am less inclined toward socialistic measures than ever before. If our chief aim in life is to produce producers only, then the elimination of the non-producer is, of course, required. That may be the implication of theoretical socialism, but it is not the spirit of Christianity.

The perennial freshness of the interest in the keeping of bees is, I fancy, largely due to life and mystery. A hive bursting out with bees is a sight to gladden the heart of any one. There is life abounding, exuberant. The ancient Egyptians used the bee as a hieroglyphic sign to indicate royalty.

As the Egyptians used their bees
To express their ancient Pharaohs.

—Hudibras.

Incidentally, no doubt this is the origin of that odd expression, the "king bee." The bee was the royal symbol, we are told, because the king had honey to give as a reward, and a sting as punishment to the unworthy. But it seems to me that the real reason why this insect was chosen as the

royal emblem is that it is a symbol of life. The glory of a king is the swarming multitudes over which he reigns. And the populousness of the hive must have suggested itself as a fitting emblem of the king, the head of their national life.

Then add the fascination of mystery to the interest which we all have in life in its varied forms. After all the light which we possess is gathered together, the mystery of the things which we do not yet know about bees is very great. There are many things about the habits and life-history of the bee for which light is sought. And the problems of bee culture are elusive, because, as it seems to a beginner, there are so many things which are known only in a practical way and not scientifically. For example, Albin Platz says, page 23, Jan. 1, "Don't practice stimulative feeding in the spring." My single colony came through the winter weak. I am satisfied I should have received little or no surplus honey without stimulative feeding. I used the Opfer feeder, which will take only five ounces of sweetened water at a time. Almost immediately the reaction under this stimulus was visible. The queen got busy. With the number of sections of comb honey already indicated, with one nucleus taken off and a brood-frame taken out to strengthen another weak nucleus, I feel that stimulative feeding is a good thing. But this is simply matching experience against experience. If the Department of Agriculture would permanently maintain a great experimental apiary, and employ the laboratory methods of modern science, light might be gained on some of the really great problems of bee culture. I do not now refer, of course, to stimulative feeding, which is not so vital as many other problems.

Oak Park, Ill.

LECTURES ON BEES IN BAVARIA

BY J. A. HEBERLE

The organization of beekeepers of Markt Oberdorf and the surrounding country arranged for a short course of instruction in beekeeping free, not only to the members of the organization, but outsiders also were invited. Mr. C. Hofmann, Munich, in charge of apiculture in Bavaria, conducted the course. Being so late in the season, practical work in the apiary had to be omitted. First was given a talk on the history of beekeeping in general, and especially in Bavaria.

IMPORTANCE OF BEEKEEPING.

The value of colonies, wax, and honey, based on the number of colonies in 1907,

was estimated at two and a half million of dollars—quite a sum for so small a country. For this reason the government encourages and fosters beekeeping in every way. The service bees render to agriculture by fertilizing the flora is great. Some one has ventured to estimate the value per colony at \$20.00. He thought, probably, he would rather lose the game by playing a card too many, as Sancho Panza said. The flowers secrete nectar so the bees and other insects will visit them and bring and carry away the needed pollen. The nectar is usually within, at the base of the flower; and while the bee or other insect endeavors to get to the sweet, the pollen sticks to the hairy garment of the bee; and when she touches the pistil of the flower a few of the fine grains of pollen do the work. The "Wiesen Salbei," a salvia, has a peculiar construction. In order to get to the nectar the bee has to push the short end of a lever. On the long end is the stamen. The bee pushes the button and does the rest. We see how wise it is that the bee, while gathering nectar or pollen, visits but one variety of flower or blossoms, otherwise the probability of bringing the needed pollen to the right place would be greatly lessened.

BEES IN HOT-HOUSES TO POLLENIZE APRICOT BLOSSOMS.

The lecturer mentioned a very interesting case. The city of Nuernberg has a number of hot-houses in which apricots are raised. These hot-houses are rented to a gardener. This gardener, with his assistants, used to fertilize the blossoms with brushes, but they had only moderate success. Once, through a broken pane of glass, some bees got into one of the hot-houses. It was found that in this house where the bees had fertilized the blossoms the trees had set much more fruit than the trees that were artificially fertilized. After that, bees were kept in the hot-houses during blossoming time. The bees do the job cheaper and much better—in fact, too well, as too much fruit sets. It was further found that the time of blossoming was much shortened. This is a decided advantage, because the weather and the various enemies have less chance to do damage. It is known that, after the fertilization is complete, flowers and blossoms soon cease to secrete nectar, and insects are no longer needed. The plant makes use of the sap (its blood) for the ultimate purpose—the production of seed, etc.

ANATOMY.

The *chitin skelet*, as well as the interior organs, were thoroughly discussed. Drawings on the black-board, charts, and a model, helped to elucidate the subject. The

anatomy and physiology of the bee is very interesting and complicated. The antennæ alone have many thousands of organs of sense. The tongue is part of a complicated suction apparatus. The legs show a marvelous adaptability for walking on the ceiling or on glass. They can hold a great weight, as is shown when bees collect pollen in the basket to carry it home to the babies. The stinging apparatus is wonderfully made. The novice will readily conceive that it is fearfully made.

VARIOUS RACES COMPARED.

Of the many varieties of bees, the Italian, Carniolan, and the common black bee were mentioned, and the character of each described. The Italian begins too early to rear brood. We have here much bad weather in spring, even in late spring. The extensive brood-nest entices the bees to untimely errands for water and pollen; and many, owing to the inclemency of the weather, will not be able to return; consequently much energy is wasted, and the colonies at the beginning of the honey-flow are not as populous as they ought to be, and the result is a deficiency of the surplus. It is also alleged that the Italians do not winter well. I have not been able to test these claims. I have imported several queens at different times from the United States, but the queens seem to have suffered so much by the long confinement and the hardships of the voyage that they were not qualified for any thing. However, I think the descendants might be all right. Only one queen survived the winter. The trial would have to be made by testing from four to six at one time, and early enough in the season to raise some queens to replace those which seem unable to pass the winter.

The Carniolans stand the winter very well; are very gentle and industrious; but owing to their swarming propensity they often fail to give surplus when the common black bees do. This is particularly noticeable in poor seasons. The common black bees seem best adapted to this climate. They moderate or stop brood-rearing very promptly according to weather and season. They make their surplus more by judicious economy than zeal in gathering—at least it seems that the Carniolan is just as industrious. So far as I know, there is not one Italian colony for many miles around here—say not one in ten thousand. In other parts of Bavaria or Germany there are some, but not many. Here we have blacks and Carniolans, mostly mixed breed of the two. The principal disadvantage of the mixed breed, I think, is that they do not transmit their good qualities to their progeny as well as pure-bred varieties. Of

course this law of heredity is as true of the higher animals, if not more so.

In this report I have given an outline of the topics that were treated more or less fully by the instructor.

The metamorphosis from the egg to the grown insect was illustrated, and to the practical bearings special attention was called under the head of "How bees should be handled; the stinging of bees, and protection against it; convenient way to feed bees, and when to feed; preparation of hive and comb for moving; the various hives and frames in common use; bee-houses (bees are kept here in bee-houses, just as the reverse is true in the United States); utensils and apparatus were shown and explained; combs and frames (the wiring of frames was shown); how to manage the bees at different seasons in order to obtain the best possible results; the selection of colonies for breeding; queen-rearing; diseases of bees, especially foul brood; and, last, the enemies of bees.

This short course was a success. Mr. Hofmann was congratulated from all sides. He is well qualified and well equipped to hold such courses. Next spring we shall have two days of practical work in the apiary and in queen-rearing.

Markt Oberdorf, Bavaria.

GETTING SLUMGUM FROM THE SOLAR WAX-EXTRACTOR

BY R. F. HOLTERMANN

For years it has been a puzzle to me how to clean out the refuse which is left in the wire-cloth basket in the solar wax-extractor. This has been particularly puzzling to me since the yield from the out-apiaries has been on the increase. As a result we have often been away when this refuse was still warm from the sun. Or if we were not away, we had returned from a day's work somewhere else, and wanted to eat our supper. After a good day's work I did not feel like asking or making any one attend to this matter. I may say that I have never been an advocate of long hours in work. To work fairly rapidly with an average of ten hours' work a day, or even a little less, is ample.

This year I hit upon the idea of heating the wire-cloth basket with the contained refuse over a fairly hot fire—a minute or two will do it. The matter softens first next to the wire, and comes off in a solid cake, and I do not believe there is a better way of cleaning the basket. Try it, and I believe you will think the same.

Brantford, Canada.

FLORIDA APIARY OF W. J. DRUMWRIGHT

BY M. L. BREWER

Each year we spend our vacation in Florida, about twelve miles below where A.I. Root has his winter home. While there it is always a pleasure to meet the beekeepers of that section. One that I met in the winter of 1910, Mr. W.J. Drumwright, is one of the veterans. It is a pleasure to talk with him. Mr. Drumwright went to Florida a little more than thirty years ago with his family, himself broken in health. He selected a spot on Phillip Creek, about eight miles below Sarasota, when Tampa was his nearest market. He built his home there among the oaks and palms, and cleared and planted his citrus groves, and twenty-eight years ago he started in with bees. He has made them a specialty since that time.

In 1910, with 64 colonies, spring count, Mr. Drumwright harvested 400 gallons of extracted honey; 800 pounds of comb honey in sections, and 80 pounds of wax.

Mr. Drumwright is now about 77 years old, and very rugged for one of his years. He says that he has seen hardly a sick day since going to Florida.

No. 1 shows his old home where he reared his family, who are now all married and gone from home. The wife of his joys and younger days has been called to the other world, and now he is left with his bees for companions. The old place was too large



Home of W. J. Drumwright, near Sarasota, Fla.

for his needs, so at the time of our visit we found him moving on up the creek about half a mile. He had sold the old place. The bees were then nearly all transferred to the new locality, and we noted that they were in modern hives, painted white and fresh, and systematically set in regular order.

The new place is a twelve-acre tract with a nice young grove just coming into bearing. The honey-house was built, and at the time of our visit the foundation for the home of the faithful horse was being laid, and the house was to follow.

No. 2 shows a portion of the creek and the honey-house, so built that loading and unloading from the launch could be done with ease. The apiary is located just beyond the honey-house.

No. 3 shows a portion of the apiary with Mr. Drumwright sitting on one of the hives. A small portion of the creek is visible through the palms.



The honey-house on the creek.



Mr. Drumwright in his apiary.

Mr. Drumwright himself, his horse, and his bees, seemed to be the sole occupants of the place. May they live many more years to enjoy their work together.

Philo, Ill.

HOW I BECAME INTERESTED IN BEES

BY BRYAN STRUBE

One morning in May, 1912, as I was passing a schoolhouse I saw something hanging on a limb. A terrible humming sound met my ear. I knew then that it must be bees, although I had never seen so many bees before. I had heard my father talk about them, however, but he had never kept any since I could remember. I hurried home to tell my father. He took a barrel and put in two cross-pieces about six inches from the top, in order to keep the combs from falling. As soon as he looked at the bees he said that they were Italians, and that it was the largest swarm he had ever seen. We sawed off the limb and let it down to the ground easily, a distance of about fifteen feet. We set the barrel over it, and drummed on it until they started in. We then went home to wait until evening before trying to move the bees. After dark we started, taking with us a sheet and a tub. We found that the bees were all in the barrel. We spread the sheet over the tub, set the barrel down in the tub, and tied it up

like a washing of clothes, then put the barrel in the buggy and carried the bees home safely, a distance of about a mile. The next morning they were flying around, and soon began to work in their new home.

Later I ordered two Danzenbaker hives. We transferred them about the middle of August. We took about a gallon and a half of honey from the old barrel. In transferring them they swarmed out on two different limbs. We hived them in two hives. In half an hour they were all in one hive. We then supposed there was but one queen. They filled the brood-chamber and made four sections of surplus.

Ever since I have been reading all I could get on bees. I am sixteen years old, and think that beekeeping for pleasure, profit, and recreation is hard to beat.

Oak Grove, Ky.

HIVE-PLIERS

A New Tool which Saves 25 per cent of Stings and Does 25 per cent More Work

BY JOSEPH GRAY

A good laugh does no one harm, and I surely had a good one at the idea of using "sugar-tongs," yet 25 per cent less stings and 25 per cent more work caused me to change my views. So from jest I turned to earnest consideration of their use, and at



Joseph Gray's combined hive-tool, frame, tongs, pry, scraper, etc.

last produced the tool shown in one of the illustrations. I have, however, given it the more dignified name of "hive-pliers."

The one thing that arrested my attention most was the firm grasp of a comb single-handed, leaving the left hand free to use the smoker, bee-brush, etc. The frames are pried apart, then grasped with the pliers,

one hand only being required to handle them, allowing the free hand full use of the smoker. When using the brush, the comb is grasped by the pliers, dropped on the front of the super sufficient to jar off the bulk of the bees, the remainder being brushed off. These tools are not laid down, hence the gain in time.

During a rush of honey the comb is just pulled over the edge of the super, and the bees brushed off.

The pry forces the nut and bolt to fasten the two jaws together, the reverse-nut end being used for a hammer.

It is self-evident that the pliers save stings. The hands do not come in such close contact with the bees; yet greater is their importance and value in handling diseased colonies. The hands do not touch the comb, only the plier jaws, and these are easily disinfected by burying them in the hot barrel of the smoker.

The first use of the pliers is awkward because one wants to lay them down and use his fingers; but after one thousand frames have been handled by them the experienced apiarist will have learned their use and their value.

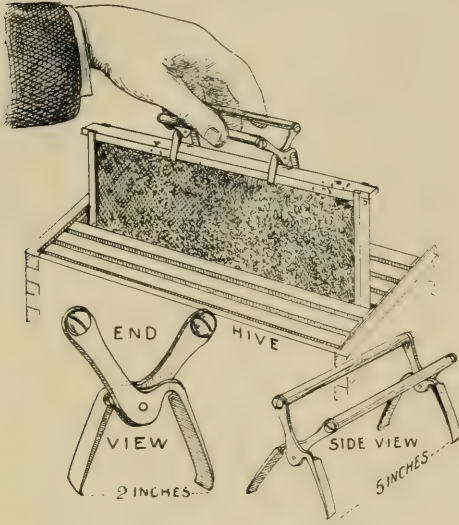
Wasco, Cal.

[Hive-pliers or tongs have been suggested by a number of beekeepers, several of the suggestions having appeared in these columns before; but extensive producers



The tool in operation.

usually do not use them, for the reason that they can get along just as well (or better) by using their fingers alone.



Another idea for frame-pliers, sent us by Wm. Grams, of Sturgis, S. D., is shown herewith. Perhaps the latter tool permits of a rather firmer grip on the top-bar, with less tendency of the frame to tip if not grasped exactly in the center.—Ed.]

BEEKEEPING A FAVORITE SPORT

BY HENRY A. SHAEFER

Keeping a few colonies of bees is my favorite sport. I have hunted, fished, played ball, and used a camera. I soon tired of all these, but not so with my bees.

My father is a farmer, and I work on his farm. I care for my bees at noon, and nail up frames and get supers ready in the evening. We live in a rather hilly country where white clover is the principal honey-plant. It is everywhere, and the honey-flow begins about June 10, and usually ends the latter part of July.

The first half-hour that I spent with the bees was a very pleasant one. I had bought a colony of bees during fruit bloom, when it happened that the weather was too cold for the bees to fly. I could hardly restrain my impatience until a warm day came. When it did come I put on my home-made veil (my bee supplies had not come yet), and without smoker or gloves I went to open the hive. I expected to get stung many times before I closed it again, but not a bee dared to be so forward.

I looked for the queen, for I wanted to see if all the talk about her being so large

was true. Three or four times I thought that I had her, only to find that it was a worker distended with honey. It would go into a cell with honey in, and I thought that surely a queen would not lay an egg in a cell half full of honey. At last I found the queen. She was much larger than the bees I had mistaken for her. I took the frame with the queen on it and proudly showed her to the folks, then took the frame back to the hive and carefully closed it, satisfied that I had seen a queen bee.

Every time after that, when I looked into the hive I saw or learned something new. That was and still is my pleasure. The work connected with keeping a few colonies is light, pleasant, and also different from all other work on the farm.

Colfax, Wis.

HONORABLE O. C. SKINNER

BY WESLEY FOSTER

The keeping of bees attracts in all probability more people in varied walks of life than any other line of work with perhaps the exception of poultry-raising and farming. The latter rural pursuits have drawn many business and professional men to their ranks from the city during the past few years.

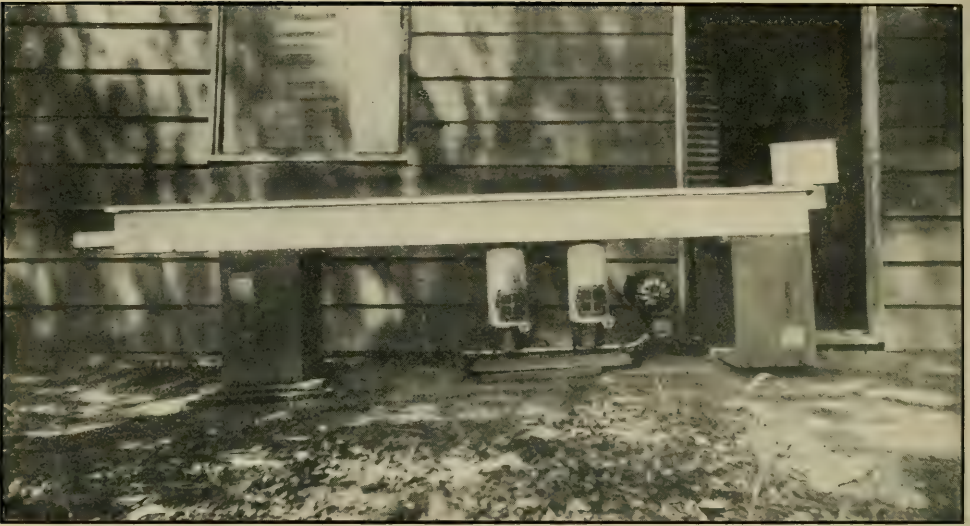
But bee culture embraces in its list of devotees people from all ranks of life—men, women, and children. Editors and newspaper men generally seem to be drawn toward beekeeping because, no doubt, of the opportunity for outdoor work, without the physical demands that many phases of farming require.

Mr. Skinner is an old newspaper man, who is now a member of the Colorado legislature, and a beekeeper on the side. He owns something like 200 colonies of bees that he has leased to another party. But 20 colonies placed on the roof of a shed at the rear of his home place in Montrose are cared for by himself. I am showing a picture of this shed-roof apiary. Mr. Skinner tells me it is a great improvement over placing the hives on the ground, because of the greater safety to passersby. The disadvantage is that, when walking on the shed roof, all the hives are jarred more or less, which angers the bees. But the flight of the bees being above that of traffic on the street more than balances this disadvantage.

During the spring of 1911 I met Mr. Skinner for the first time. I asked him to introduce a bill in the House relative to apiary protection which had been drawn up by the committee on legislation of the Col-



Shed-roof apiary of Hon. O. C. Skinner, Montrose, Col. Mr. Skinner is speaker of the Colorado House of Representatives in the 19th General Assembly. Robert E. Foster and E. D. Nichols are standing by the ladder. Mr. Skinner is very indistinctly shown close to the barn roof.



S. A. Niver's arrangement for heating honey as it runs from the extractor so that it may be easily strained through cheese-cloth.

orado State Beekeepers' Association. This law passed the Houses, and was signed by the Governor, who, however, cut the appropriation down two-thirds.

Mr. Skinner is a small man, but correspondingly active. He is reputed to be a progressive among progressives, and has lived up to the name pretty well. The bee-men could not hope for a better helper in the legislature in securing recognition for the beekeeping industry of Colorado.

At our 1912 spring convention in Montrose, Mr. Skinner gave us many valuable points on the proper methods of procedure in order to secure apicultural legislation. We used his suggestions this winter. He is a very "likable" man.

Boulder, Col.

A DEVICE FOR STRAINING HONEY AT THE TIME IT IS EXTRACTED

BY S. A. NIVER

I was interested in the April issue of *GLEANINGS* to note that the extracted-honey producers are waking up to the need of some way to strain honey through a cloth fine enough to make it fit for table use. As it comes from the extractor, it is too thick to strain without heating. If run into the five-gallon cans, and the cans set in hot water, part of the honey gets too hot; and, besides, that takes a lot of work and bother, so they let it go, as a general rule.

Then the salesman who repacks for the retail trade has all that to do, and dislikes it, for he must carry quite an outfit, which

must be taken from town to town. He must find a room suitable to work in, spend his time heating, straining, and bottling, all of which means extra cost to the consumer.

Now that I have "reformed," and quit the road work and gone back to my first love (producing extracted honey), my thought naturally turned to some kind of invention that would heat the honey as it left the extractor sufficiently to strain through ten-cent cheese-cloth. I enclose a picture of the device we made for that purpose, and I will only say that it "gits thar," even with our California honey, which the editor has had some experience with in past years.

It consists of a tank or trough 8 feet long, 6 inches high, 8 inches wide, full of water, with two conductor pipes 3 inches wide by 2 inches deep, placed inside, entering the end under the extractor faucet an inch from the top, leaving the end next to the storage-tank an inch from the bottom.

This incline of the pipes, running through 8 feet of hot water, allows the honey to heat until it is thin enough; and as soon as it is thin enough, and not before, it hikes along to the strainer, which is placed above the storage-tank. The two oil-burners will heat the water in the trough in a few minutes; then we turn one burner out entirely, and turn the flame to half speed in the other. The water is then about right to keep the honey out of our way, even when two "lightning operators" are on the job. I had to take the device out of the basement, where it is suspended from the ceiling (as we extract on a floor above), for the light

was bad for photographing; but it is so simple that I presume all will see through the scheme easily.

Allow me, Mr. Editor, to call your attention to a mistake or two in your recent editorial comments.

You said, "If not mistaken, Morton invented the telescope swarm-catcher." Nope! "I seed it first." Then you think that Canuck, Holtermann, has the biggest extractor. Nit! only 12 frames. Our merry-go-round throws 16 at a time, reverses like a Cowan, and I can take it to pieces by taking out a few bolts, screws, turn-buckles, and unhooking wires; nest the whole thing into a small space, take it to an outyard, and set it up again.

This county is three times as large as the whole State of Rhode Island, and contains (so they say) 360 beekeepers. They elected me president of their beekeepers' club, but I have met only 6 of those 360 so far. Jamesburg, Cal.

HOW TWO SWARMS OF BEES WERE CARRIED HOME

BY J. W. STINE

I am enclosing a picture of "a good catch" in the way of two swarms which I captured five miles east of Salem while out on an inspection tour. One swarm is in the nail-keg in the seat by my side, and the other I put in a sack and hung it on the side of the buggy. Both swarms are doing fine work in the supers now. They were captured the first week in June. I thought possibly this might be a new way of carrying bees.

Salem, Iowa.

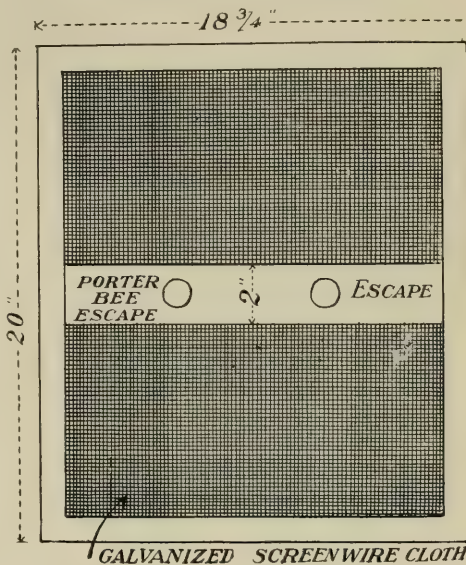


Carrying two swarms, one in a keg and the other in a sack.

WIRE CLOTH AS A SUBSTITUTE FOR WOOD IN BEE-ESCAPE BOARDS

BY ARTHUR F. HODGSON

During the past season I did considerable experimenting with the bee-escape boards with gratifying success. I think that the result of these experiments would be of



value, especially to large producers of extracted honey. So far as I know, bee-escape boards have been made of wood, the idea being to make a complete separation (except one way through the bee-escape) between the super or supers to be removed and the hive below.

In queen-rearing operations I have noticed the peculiar effect of wire cloth as a partial separation between bees, and this led me to construct a bee-escape board entirely of this material (except for the necessary rim and cross-piece containing the bee-escapes). In a twelve-frame hive I think that the two escapes are a decided advantage.

The enclosed drawing will illustrate the idea. The advantages are that the supers are very rapidly freed from bees, and the deserted combs are not shut off from the heat of the hive. In cool weather this is a decided advantage where combs are to be extracted, and in hot weather it is equally advantageous, as the bees do not feel their contracted quarters as much, considerable heat being taken up by the beeless combs above.

It may be argued that bees separated by wire cloth would pass honey through to their fellows below (even during the few hours there are bees on both sides of the



A GLIMPSE OF OUR DASHEENS AT MEDINA.

The above picture was taken about ten days ago; and to-day, July 30, owing to a very warm spell of weather, accompanied with abundant summer showers, they are almost twice as high; in fact, some of them, if they keep on at this rate, will soon be as high as my head; and the Evergreen sweet corn, right back of the dasheens, is all tasseled out and higher than I can reach. In fact, it is about the finest-looking sweet corn I ever saw. Do you catch on? It is the heavy mulching of stable manure that was put around the dasheens. You can see the fragments of cornstalks in the manure that were used for bedding. You can just get a glimpse of the potatoes further on at the end of the dasheen rows. They not only cover the ground, but some of the vines stretch up higher than my head, although early potatoes. You see the potatoes, Hubbard squashes, and every thing else, "got wind" of the generous feed, and commenced sending out their white rootlets all over into the dasheen patch to get "inspiration." The Solomon's Island gourd or "guado bean," in the middle of the row does not show in the picture; but it would show if taken to-day. It grew about a foot and a half while I was absent in Michigan. A letter just received from my nearest neighbor, C. L. Harrison, reads as follows: "Some of my dasheen is 62 inches high, and the leaves are 26 inches long, 21½ inches wide. I have used some of the small shoots for greens. They are excellent now, July 24. —C. L. HARRISON, Bradentown, Fla."

screen), and thus deplete the combs. After careful observation I failed to notice such a result. My experience goes to show that, if honey is passed through the screen, it is up rather than down. For example, a super fitted with wire-cloth bottom (nuclei for queen-rearing) placed above a strong colony will become clogged with honey from the colony below.

I feel quite confident that, with these rapid escape-boards and my eight-frame power extractor, I can handle alone a probable ten-ton crop this season.

In using these bee-escapes there is no back-aching job shaking and brushing individual combs to free them from bees with the consequent killing and injuring of hundreds of the season's best workers, to say

nothing of the return in stings, and the danger of robbing is reduced to a minimum.

After carefully trying frames with both one and two escapes I am satisfied that there is an advantage (in length of time required) with the frame having two escapes; but this advantage is not important as regards freeing the super of bees. However, when I considered the small extra cost with two escapes it seemed practical to use them; for if, for any reason, one did not operate, the other would. I have never had a Porter escape that did not work beautifully; but I do not wish to take any unnecessary chances confining bees, as confined bees will very rapidly raise the temperature, and this would be disastrous, besides not accomplishing the desired results.

As for the time required, I find that, at the close of the honey-flow, when combs are almost capped, that 24 hours is quite practical. I have put the escapes on early in the morning and found the combs free of bees by evening. As a colony requires seven or eight hours to realize its queenlessness, just so a few hours must elapse before the bees in the super feel their separation. Then the escape works rapidly.

The peculiar adaptation of the screen occurred to me while using a screen frame in connection with cell-getting. I advise the use of galvanized wire cloth on account of its durability.

To give you what I consider the supreme test of this wire-cloth-escape frame, please note: Through some carelessness in manipulating, a queen had possession of two twelve-frame supers in a powerful colony; and as I did not wish to take the time to shake the bees off the combs, and thinking it would be a most rigid test, I put an escape frame in the place of the queen-excluder. Thirty-six hours later I found the queen among a lot of newly hatched workers, and, of course, the drones. I have fifty of these escape frames in use, and I intend making fifty more for next season. I am running 225 colonies, twelve-frame Langstroth hives, entirely for extracted honey.

Jarvis, Ont., Canada.

[See editorial.—ED.]

BUILDING COMBS OUTSIDE OF THE HIVE

BY A. I. ROOT

One of our men who has been out buying honey reports that he found a beekeeper near Columbus Grove, Putnam Co., Ohio, who had over 100 colonies; but he was so "busy with something else" that he had not had time to look after his bees, and the result was they filled all their supers, then clustered outside of the hive, and there built combs and stored honey. The well-filled and capped sections had been left on the hive until they were so travel-stained that the honey was any thing but first-class.

The above incident reminds me of something that happened years ago. A beekeeper with toward a hundred colonies lived three or four miles from Medina. I sold him some modern hives and fixtures, including an extractor; and one season when we were having our great flood of honey I thought I would run over and see what Mr. Pratt was doing. He had not used the extractor at all, although his hives and upper stories were crammed full of honey. He gave as an excuse that his farmwork

was so crowding that he had not had time to "fuss with bees." I asked him what farmwork. He said his corn had to be cultivated. I told him the honey he had lost was worth twice over the produce of his whole cornfield, even if he had a big crop. He could not believe it. Then I showed him what we had extracted from about the same number of hives. Finally he said, "Why, would you advise me to let the cornfield grow up to weeds?"

"Certainly," said I.

"Why, what would the neighbors think and say?"

"Mr. Pratt, I would not care a cent what the neighbors say; and, besides, when those same neighbors saw you taking a couple of tons of beautiful honey they might not say any very bad things after all."

The moral to the above is, what is the use of being a beekeeper if you do not "have your dish right side up when it rains porridge"?

STRAY SWARMS SHOULD BE HIVED ON STARTERS

Danger of Foul Brood

BY A. H. SNOWBERGER

I wish to give a word of caution to beekeepers about a matter that has given me much concern and uneasiness during the last few months; and that is, hiving stray swarms.

Late last season a very small stray swarm clustered on a neighbor's hay-loader while he was at the barn unloading hay. I was sent for, post haste. I was glad to have the bees, as my apiary was much reduced by the previous winter's loss. There was not over a quart of bees, and I supposed it was a very late after-swarm with a virgin queen. I hived them on empty combs, and gave them a comb of hatching brood; but I soon found that they had a laying queen and not a virgin. By feeding and giving another comb of brood later, I built them up into a fair-sized colony, and wintered them; but as soon as they commenced brood-rearing in the spring I noticed something wrong with the brood. I kept them under observation, thinking that they would soon be all right. But instead, they got worse.

I had never seen foul brood; but from descriptions I had read I diagnosed it as foul brood, and a bad case at that. The queen seemed to be a moderately prolific layer; but so much brood died that the increase was slow. Finally I shook the bees into a clean hive, having only half-inch starters, and burned their combs, frames, and brood, and disinfected the hive. At the

same time, I sent a sample of their brood to the Bureau of Entomology, Washington, and soon had an answer from Dr. Phillips, stating that the trouble was American foul brood. He also reported the case to our State Entomologist at Indianapolis, who immediately wrote to me for further particulars. I answered at once, and arrangements were made for an inspector to call on me soon. The inspector made a thorough examination of my apiary of 37 colonies, but could find no foul brood. Even the colony that had been infected he pronounced all right, but said they undoubtedly must have had it, or Dr. Phillips would not have said so after seeing the sample. He gave me a clean bill of health.

I now see danger in having these stray swarms, although I hived three this season which are doing well. If I hive any more I think I will hive them on narrow starters instead of empty combs, then the honey they carry with them will be consumed before they have any brood to feed.

This swarm that I hived last season, and that caused all my trouble, was evidently not an after-swarm, but an old colony so reduced by foul brood that they had deserted their old home, and I hived them to my disadvantage. There are but few bees kept in the neighborhood, and there is no disease among them, so far as I know. The infected bees might have come from a tree in the woods. I was fortunate in discovering the trouble so soon.

Huntington, Ind.

HOW I CHOOSE A BREEDER

BY MAJOR SHALLARD

I was at one of my branch farms lately, where they were extracting. My son asked me to choose a queen to breed from, as he wanted to raise some new queens to replace some mongrels. I had no time to go through any hives, as I had to get away to extract at another farm; but I walked through and chose half a dozen by external signs.

The first two I came to were hanging out. I passed them by, as bees that hang out, in my opinion, are no good. I came to a four-story hive. This looked good because the bees on this farm had only combs they could occupy; and where most of the hives were two and three story, the possession of four showed honey-gathering qualities. I then had a look at the bees at the flight-hole.

They were all evenly marked with three bands. They had a fair number of bees fanning, and they were working steadily. What I mean is that there was a steady stream of

bees going in and out. Some bees make a great show at the flight-hole. They fly about a lot, hover over the flight-board before they alight, and fuss about on coming out before they finally leave for the fields. These bees were not doing that. They flew straight at the flight-hole, dropped on the board, and ran right in. The bees that fuss a lot never get much honey—at least that is my experience.

Having satisfied myself that the queen was pure, and that her bees were good workers, the next point was how much honey they had. I put my hand under the back of the bottom-board and tipped the hive. It required an effort to raise it at all, and it was apparently full of honey. I picked out five more hives with the same characteristics. They were all four-story hives. I said to my son, "Go through these six hives and pick out the one with the minimum amount of honey and the maximum amount of brood in the bottom story. Choose a queen that is large and long. It does not matter if she is a bit black toward the tail; but the black must be solid, and gradually merge into the yellow, or the yellow into the black, whichever way you like to put it; but there must be no suspicion of any black ring. She should lay a good plump egg, and all at the same angle, or as nearly as possible, and the brood should be in solid sheets. The bottom-board should be clean; and if she has these other qualities it will be; and, above all, her bees *must* be good honey-gatherers. Without the latter qualifications all the others go for naught."

In comparing these six queens one will show more of these desirable qualities than the others, and that is the one, so far as can be told at this stage, to breed from.

The next step is to breed from her, and see if she reproduces herself in appearance and honey-gathering qualities in her daughters. If she passes the second test she is good enough to breed from until another queen is found which has all her good qualities, and will get more honey.

South Woodburn, N. S. W., Australia.

When to Introduce Virgin Queens

With reference to waiting three days after taking a laying queen from a mating-box before giving a cell or virgin queen, as advocated on p. 466, July 1, I would say that I put in virgin queens immediately after taking out the laying queens. I use the smoke plan. I noticed one that I introduced July 5, at three o'clock. I examined them at four o'clock, and she had mated in one hour after I had introduced her.

I have tried the smoke plan on requeening strong colonies, but I do not have good success.

Brook Park, Minn., July 11. HARRY BELL.

Heads of Grain from Different Fields

How doth the little busy bee
Delight to bark and bite,
Making honey all the day
To eat it up at night!

Trouble from Mating-nuclei Swarming Out

I want to know how to keep my nuclei from swarming out and leaving their hive. They will leave honey, young larvae, eggs, and hatching bees, and swarm out. My honey crop is almost an entire failure this year.

Jellico, Tenn., July 14.

CURD WALKER.

[We could answer you a little more satisfactorily if we knew what size or kind of nuclei you are using. If you are using the small Pratt baby nuclei you will have considerable difficulty about their swarming out in spite of any thing you can do. If, however, you use the larger size, the twin-mating nuclei, you will have comparatively little trouble providing you put enough bees in each side. The little combs should be well covered with bees; and in order to make this start it is better to get the bees from some outside location. Shake them into a large box; then dip them up by dipperfuls and pour them into the boxes. If you keep these bees strong enough and the queen long enough so that they can keep the frames filled with brood there will be very little swarming out. At certain times, however, we advise the use of perforated zinc with which the nuclei are supplied. Queens must not be kept longer than enough to lay eggs in the frames, or there will be danger of the bees swarming out.]

If, on the other hand, you are using the larger nuclei, employing standard frames, there should be no trouble about their swarming out. In any case, you will, of course, recognize the importance of keeping nuclei supplied with food. If they do not have honey or stores in their combs they should be fed of course.—ED.]

Why the Queens Died in the Cages

Five queens were bought of a New Jersey breeder and mailed about 20 miles on July 4. On the 5th at 9 o'clock the queens were killed in five colonies to make room for the new stock, and one queen-cage placed in each just below the top-bar with the combs squeezed against the cage to hold it in place with the wire-cloth side down and the thin cardboard removed from the candy end. At 3 o'clock P. M. on the 7th an examination showed the queen and all the bees dead in four of the cages, and the fifth apparently all right except that the candy had not been eaten out. A hole was punched in the candy, and the queen released and accepted. The candy was hardly touched in the four cages. No bees were dead in the fifth cage. The queen candy seemed a little dry, but not enough to make it seem impossible for the bees to use it without difficulty. The breeder says all were treated alike. Have you any clue to the trouble?

E. G. CARE, Bee Inspector.

New Egypt, N. J., July 8.

[There are two causes that might account for the death of the queens. One is the kind of wire-cloth used on the cages, and the other the condition of the candy. Referring to the first mentioned, bees are sometimes poisoned by the paint used on the cloth. If it is green we have known of instances where the queens have died. But usually they will arrive in rather bad condition. It is hard to explain why the bees should arrive in fair order, and then die after they were introduced. Taking every thing into consideration, it is our opinion that the real cause was the condition of the candy—that is to say, it was too dry. It was moist enough to get the bees through to their destination, but the bees and queens were probably in a weakened condition at the time they were introduced. The dryness of the candy did not enable

them to survive long. The condition of the candy may be explained by saying that four of the cages had poor candy while the one cage had candy that was a little more moist. The great problem of sending queens by mail is getting the candy just right—not too sticky or moist, and not too dry on the other hand. You state that the candy seemed a little dry, but you think not enough to make it impossible for the bees to appropriate it. Our opinion is that, if you will take these cages where the bees died and put some fresh bees in them, you will find that they will not live more than 24 or 48 hours at the most. If you will put a like number of bees in the other cage where the queen did not die we think you will find a difference in results.—ED.]

Can we get Alfalfa Growers to Cut their Alfalfa Later?

How am I to persuade the people of this section to cut their alfalfa at the right stage? They cut it, to my notion, before it goes to bloom. There is a fine future at this place, providing I can get them to cut it at the right stage. I never in all of my life saw the like of wild bees on the mountain sides. This is what they call Round Valley, containing about 10,000 acres; and as I am only a beginner I should like advice on the subject.

Covelo, Cal., July 5.

F. F. TURNER.

[We suggest that you correspond with Dr. A. J. Cook, Horticultural Commissioner, Sacramento, Cal. He might be able to advise you on this matter. We might say, however, that there has been a tendency on the part of alfalfa-growers to cut their alfalfa just about or a little before it comes into bloom. Some of them have asserted that it makes a little better quality of hay. On the other hand, we have heard that statement contradicted by those who claim to know; but this is, nevertheless, the fact, that the alfalfa-growers are a little behind on their schedule anyhow in cutting their hay, and in most cases they are not able to cut it until it is well into bloom.]

Generally speaking it would be pretty hard for a beekeeper to convince an alfalfa-grower that it would be to his advantage to cut his hay a little later in order to accommodate him, the beekeeper. It looks too much like a case of an ax to grind. If, however, you can get hold of some literature that would show that this early cutting is a mistake it will help materially.—ED.]

Experiences with Bees in a City Apiary

Owing to the comparatively mild winter of 1912 the bees of my suburban apiary came through unusually strong, with no loss, and as pollen was carried in as early as March 12, colonies were soon filled to overflowing with bees. Heretofore I had run exclusively for extracted honey; and in order to give more room it has been my custom, in adding another story, to put in two frames of brood and fill out with empty combs. This spring, however, I had an exceptionally strong colony almost filling two stories; and as it was necessary to add a third one I decided to deviate from my usual custom in giving more storage room. I accordingly prepared a third story and placed it between the other two.

What I most wanted to avoid (swarming) turned out just the other way. I reasoned that the queen now had plenty of room for laying; also that there was sufficient room for storage; but it seems that the bees in that upper story, having been removed from their companions by having a full-depth super placed beneath them concluded they were queenless. They promptly started a fine batch of queen-cells before I was aware what they were up to, and cast a monster swarm. While they were clustered I cut out every queen-cell and shook the bees from every comb, and then returned the bees to their

hive. Hereafter I think I will adhere to my old methods of tiering up.

I run exclusively for extracted honey; however, I tried one hive for comb honey this spring, but with disappointing results. Just before locust bloom I put a super of sections and bait combs on this colony; and as they had every available cell in the brood-chamber full of brood and honey I concluded it was in ideal shape to work in the sections. They started to draw out the foundation in good shape, and then promptly swarmed. As the queen was clipped they naturally returned; but a few days later she disappeared, and now the bees are starting a second batch of fine peanut-sized cells. Such proceedings disgust me with the production of comb honey, and I think this excessive swarming is the chief reason why so many prefer to produce only extracted. As I receive 20 cts. per lb. for the latter it would scarcely pay me to bother with comb honey.

Several months ago I purchased a straw skep, and am having lots of fun with it. I built up a nucleus until it was pretty strong, and then made it swarm, hiving the bees in the skep. They are filling it with comb in great shape, and this old-fashioned hive of by-gone days is a subject of interest to all who visit my home.

Cincinnati, O., June 4.

ALBIN PLATZ.

To Get Rid of Ants

On page 118 of the A B C and X Y Z of Bee Culture you show a method of piling up honey-supers filled with honey to prevent getting sour. How do you manage to keep out the large black ants found in the honey-house? As soon as I put a filled super in the honey-house I am sure to get at least five or six large black ants in there; and unless I pile the supers tightly on top of each other, and something almost air-tight (wire screening is no good) on top of that, the ants get in. They then manage to perforate the comb (only here and there) enough so they leak out, so I can not sell them as perfect ones. What would you advise?

Butler, N. J.

MRS. A. HENDERSON.

[If you are troubled with ants of any sort the plan mentioned would not work. The first thing to do is to locate the ants' nests wherever they may be. If they can be found, pour about half a pint of bisulphide of carbon into a hole made in the center of each nest with a crowbar. After pouring in the liquid stop the hole up with earth and you will find shortly after that the entire nest, eggs and all, will be destroyed. If you are unable to locate the ants' nests you can still employ the same method described in GLEANINGS by placing the pile of supers crosswise upon a board or table. The table legs should stand in tin cans of water or grease. For this purpose the table should be low down and large enough to take up several tiers of supers, providing you have very much comb honey to pile up in this way.—ED.]

Bees Dying Just Before They Hatch

Gentlemen:—Yours of the 16th is received with the booklet, "Bee Diseases," which I have read carefully, but find nothing that corresponds exactly with my trouble, as the bees appear to die when three-fourths developed, as you will see by enclosed, while many that mature and cut out of cell apparently perfect, can not fly, are undersized, and weak. There is no odor, nor sign of paralysis.

Wilkinsburg, Pa.

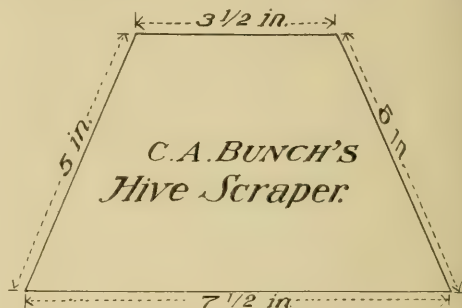
W. D. KEYES.

[The cage of dead bees has been received. The bees show very clearly that they are undeveloped young bees that have been picked out of cells of combs. It would be my opinion that this brood had been chilled or overheated at some time. A comb that is allowed to stand in the sun for a very short time on a hot day would become so hot that it would kill the brood, or at least a large part of it. In the same way, a cold chilling wind or a frosty atmos-

phere will destroy brood, resulting in young bees hatching out that are imperfect or dead. One is apt to gather the impression that it is pickled brood, foul brood, or some other brood disease. Brood dead from these diseases does not look like the specimens of dead bees received. In fact, they never attack bees almost ready to hatch. Brood may die in this way that has never been exposed to the sun. Sometimes the entrance is closed up temporarily, allowing the colony to become so heated that the brood will be affected.—ED.]

A Handy Hive-scraper

I am sending you a description of a hive-scraper that I have had in use for about 25 years. It is nearly the shape of a letter A, only the top of the scraper is $3\frac{1}{2}$ inches wide, 5 inches each side, and $7\frac{1}{2}$ across the bottom. When using the scraper I hold the top edge with one or both hands. This



scraper is made from a piece of old crosscut saw. The long side or bottom is always kept filed off square. This makes a good implement for scraping off propolis and other refuse about the hive.

Lakeville, Ind.

C. A. BUNCH.

Learning by Costly Experience

When I first began beekeeping I knew in a vague way that a queen, drones, and workers compose a swarm, and that the workers gather the honey. That was practically all I did know until I began to read up on the subject of bees.

I had a colony of bees (in a store box) which I had caught the previous summer, so I transferred them into two home-made hives which I bought. I took out about 75 lbs. of honey. I bought two Italian queens, but lost one in introduction, and the other in the spring through robbing. Those bees were very cross; but I think now that they had good reason to be so, as a man who has never seen bees handled has to learn a good deal by experience, no matter how much he may have read.

Well, I bought two more colonies from a farmer, and became accustomed to being stung quite regularly by them. I secured a fair amount of honey also. Then when the craze for Caucasians came I got some queens and introduced with very good success in the early part of the season, but lost two out of three in the fall when I thought I knew all about introducing. Those bees did very well, and I raised a few queens by the nucleus plan, but got most of them misnamed, and could distinguish them from the blacks only by handling. I had by this time seen drone-laying queens, and had laying workers.

About four years ago I bought five colonies cheap from a neighbor, and transferred in the early spring to Danzenbaker frames. I got a fair crop of clover and milkweed honey; but in August I noticed something wrong. The bees were not working well, were greatly reduced in numbers, and there was a decidedly sour smell on opening a hive. So I began buying Italian queens, destroyed some of the worst combs, and doubled up some weak ones. I lost two

in the winter, and started with six good colonies in the spring with hardly a sign of foul brood in the hive. Although in this county a good many small beekeepers have lost all their bees, I have not noticed a sign of disease in two years.

I have never seen an expert handle bees, nor have I done any thing original; but I have transferred bees for men who had kept them long before I thought of it. I have raised some good queens; have divided bees, and have introduced queens for beginners. I have tried to increase the interest in beekeeping among the small beekeepers in this neighborhood.

Waynefield, Pa., Feb. 17. WM. ROSEMERGEY.

The Striking Appearance of the Cocoons in Combs Melted by the Sun's Heat

I have recently had some old brood-comb exposed to the sun in such a manner that it has become disintegrated in such a way as to be very interesting. Since seeing this I have wondered if it is generally known how that each individual cell is made complete and united with the adjoining cells, and also to the central walls, by a substance of a different consistency from that of which they are composed. If information along these lines, together with photographs which might be taken illustrating such structure, would be of interest to your readers, I should be glad to furnish such.

Duluth, Minn., July 21. S. GEO. STEVENS.

[What you describe in your letter has been observed by all those who melt their combs in solar wax-extractors. The same condition will very often appear when combs are melted by artificial heat in hot water. What you observe are the cocoons left by the bees from brood-rearing. When their combs are melted by the sun or in such a way that the structure of the cocoons is not disturbed, the appearance is quite striking and remarkable to one who has never seen any thing like it. There have been numerous photographs of it. Indeed, it is quite a common sight to one who has any thing to do with melting up old combs. New combs when melted up will show nothing of this kind, because there will be no cocoons left as a residue.—Ed.]

Where to Keep Honey

What kind of place is the best to keep honey fresh? What should the temperature be?

New Lenox, Ill., June 26. M. J. SIMMER.

[The best place to keep comb honey is in a warm or hot dry room. A cellar, refrigerator, or cold room is the very worst place. When we say hot dry room we mean a room where the temperature may go up to 80 or 90 degrees in hot weather, and where it will never go below 70 degrees in cold weather. Extracted honey, however, may be kept in a colder room, but it will granulate. If the honey is in bottles it should be kept in a warm dry room the same as comb honey. Otherwise it will granulate, especially if the temperature is inclined to go down to freezing, then go up to ordinary living temperature.—Ed.]

Bees' Turnstile

Please mail me copy of GLEANINGS containing the following clipping, which was printed in Newark, N. J., *Morning Star* July 8, 1913.

Elizabethtown, N. J. ELMER E. GUY.

A novel and ingenious device known as a bee meter, which serves much the same purpose as the turnstile at an amusement park, is in use by a western beekeeper. The bee, in passing through an entrance or exit, deflects a thin delicate spring. To this spring is attached a wire, and the deflection of the spring causes the wire to hook over a tooth on the rim of a paper counting-dial. As the spring returns to its normal position the dial is rotated slight-

ly, and counts one unit. A lug on the unit operates the ten-unit dial, as in the ordinary counting-machine, and this system is continued to include a 1000-unit dial capable of registering 20,000. The spring is so shaped to prevent a bee from going out through an entrance or entering through an exit. This device renders it easy to estimate the activity of a colony, and to determine the number of bees that go out but fail to return.—*Popular Mechanics*.

[The clipping did not appear in GLEANINGS. We doubt very much whether the thing was ever done, although we concede that it would be possible, perhaps, but decidedly improbable. There is such a thing known as a bee-escape. This has two sensitive springs between which the bees pass, but, so far as we know, no recording-device was ever used in connection therewith.—Ed.]

Why a Queen Sometimes Lays in the Sections

My colonies all succumbed but one, and that is the strongest one I have. It is boiling over with bees all the time; but the queen in this colony has been laying eggs up in the sections. The first super I took off had drone brood in some of the sections. The next had bees and a queen-cell. I should like to know the cause of this, and the remedy. This colony has made at least 150 lbs. of honey, which would all have been perfect sections had it not been for this brood. The upper part of the section would be honey and the lower part brood. Twelve of my colonies have averaged 100 lbs. of honey each.

Shelby, Ohio, July 21.

SARA A. KERR.

[As a general rule, in the production of comb honey queens will not lay in the sections. Occasionally, however, we find one that has a tendency to go above. In such cases it is advisable to use a queen-excluder; but while such devices are commonly used in the production of extracted honey they are rarely used in the production of comb.

It sometimes happens that a queen will lay in the sections for the simple reason that there is no drone comb in the brood-nest below. When only starters are used as sections the combs built below will very often and generally be drone. If there are no drone-cells in the brood-nest the queen is quite inclined to go above and lay in these cells. Usually there will be enough drone-cells in the brood-nest to satisfy all reasonable demands of the queen.

Rather than destroy the queen that you have, your better way is to put a perforated zinc honey-board over her next year.—Ed.]

Start in Beekeeping Made by Capture of a Swarm of Bees

One day the last of June, several years ago, a swarm of bees clustered in a tree near our house. Mother saw them and called father and myself. It was the first swarm I had ever seen, and father had never seen a swarm hived. We borrowed from a neighbor an old-style chaff hive, and, putting it in a buggy, we ran it under the swarm—father with his stockings over his pants, a rain-proof coat, a pair of mittens tied over his coat-sleeves, and a veil made of a bag and mosquito-bar. He shook the bees into the top of the hive, and put on the cover.

Father gave me his share of the bees, and a few nights later I set them on the ground and took the buggy away. The bees acted lost for about a day.

The neighbor from whom I had borrowed the hive told me to put a newspaper over the frames, and not to put any sections on, for the bees wouldn't make more than enough to winter them.

In a few days the bees had gnawed the paper full of holes, and were carrying it out. I piled on more paper.

Next I visited an old beekeeper who told me to use oil-cloth instead of paper, and to put on some

sections. He also lent me the A B C of Bee Culture and some copies of GLEANINGS.

After putting on the sections I got about thirty pounds of dark honey. This interested me, and in the spring I bought enough bees so that I had ten good colonies and two nuclei. From these I secured 700 pounds of honey, and increased to 24 colonies. The best colony gave me 130 pounds. We now have about 100 colonies. The best one last year gave 180 pounds of comb honey. I have had a colony of black bees for five years that has never swarmed, and which has made about 100 pounds each season for four years out of the five. The other year this colony made about 80 pounds. This is by far the best average of any colony I have ever owned.

Lottsville, Pa., Feb. 7.

EDWARD CARR.

Bees and Chickens

The frequent articles in GLEANINGS regarding the action of poultry toward bees led me to report my own observations. I have so planned my building for housing a few chickens in the city that my half-dozen colonies of bees can be wintered in the same building. The entrances are placed about 2½ feet from the ground. Although the alighting-boards are higher than a tall fowl can reach, yet several of the young cockerels in some manner acquired the habit of jumping up and catching bees while flying. The hens seemed to pay little attention to the bees, although I observe that a bee flying too near a hen is pretty sure to be caught.

This season I have been troubled with bees attacking chicks only a few days old. They would often fasten themselves in the down upon the wings and back, and would at times keep the mother hen busy picking them off, which she was able to do with great dexterity. In some cases I found the chicks suffering, and on examination I would find stings in the feet. As a last straw before deciding to remove all bees from the building, I found a chick four or five days old in convulsions, and deserted by the mother hen. The chick was determined to tie its neck into a knot, and seemed to be doomed. On opening its mouth, a bee-sting was found in the tip of the tongue. The sting was removed, but the convulsions continued for three or four hours, when the chick completely recovered. I believe that the chick had swallowed a live bee, which, without doubt, was raving about in its crop. I think the experience shows that bees are apt to be worse for chickens than chickens are for bees. Although none of the chicks were killed, I feel sure that several were severely stung.

Ypsilanti, Mich.

F. R. GORTON.

Light-colored Hives Cooler than Dark-colored Ones

I have just read with keen interest the friendly "scrap" between our genial friend Dr. Miller and his alert and keen adversary, the editor; and if the latter will be so kind as to give these few lines space I should like to state a few experiences and observations in my own little apiary of 14 colonies. I have my hives painted in three colors—light gray, dark red, and dark olive green. To-day, June 21, the weather is hot, partly cloudy, and sultry—90 in the shade at 1 P. M. Walking among the hives I notice that the bees in the gray hives are working busily—probably ten bees ventilating on the outside on an average. Those in the red hives seem to feel the heat more, and there are at least twice as many fanning, and as many more walking back and forth on the alighting-boards, doing nothing.

Coming to the dark-green hives I notice about a quart of bees covering the fronts of the hives above the entrance, and several knots of them hanging below the entrances besides. These bees seem to feel the heat the most, and there are several rows of bees extending at least six inches from the entrances, al-

most fanning themselves off their feet in an endeavor to keep their habitation properly ventilated. I also find that the covers of the latter are by far the hottest.

It is evident that our worthy editor is entirely right in maintaining that bees do better in a hive painted white or light gray than those in dark-colored hives, as the latter absorb the heat, while the former repel it. For the same reason light colors in clothing, shoes, etc., are much cooler in hot weather than black. I intend to paint all of my hives white next fall.

Cincinnati, O., June 21.

ALBIN PLATZ

Bees Building Comb to Fences

I had my first experience in taking honey. Having noticed, some days ago, that the boxes were being filled, I removed the super to-day and replaced it with an empty one. Although nearly every box was filled with superb honey I found, much to my chagrin, that the honey in nearly every box was attached to the three-panel fence, and I got only about half a dozen salable boxes. Now I am writing to know what hive I can use to avoid this difficulty. I am contemplating going into the bee business to a small extent, but this, my first experience, is disheartening. Surely there are hives in which honey can be produced without running such risks.

Angola, N. Y., July 21.

C. S. PALMER.

[Occasionally we run across a queen whose bees will build the comb up against the slats and posts of fences, but cases of this kind are not common. You would have no trouble with such a queen by using what is known as the old-style slotted sections and separators. Your difficulty can be avoided, however, to some extent by giving the bees more room while they are filling. In other words, give them an extra super on top while they are filling the lower one. Sometimes it is advisable to put the extra super under while they are working on the upper one. As the season draws to a close, take away the partly filled super and allow the bees to finish up the work in the supers nearly completed.—Ed.]

Bees Confused by the Moving of a House that Stood Close to the Hives

I have my bees in my backyard about 20 feet from the house. I moved the house back to build in front. We began moving the house back without having changed the position of the bees. When we had moved it back about 16 feet we noticed that the air was full of flying bees; but we never thought of any trouble until one of the men was stung.

I knew then that there was something wrong; so I watched them a while and soon found the trouble. I picked up one of the hives and moved it about the same distance from the house that it had been in the first place. The bees all settled down again, so I carried the two other hives to the new location, and in a few minutes the bees were as quiet as ever.

Horse Cave, Ky., May 26.

C. S. RHEA.

Do the Northern bees that have been bred to withstand the winter cold thrive in the far South where they may be busy every month of the year?

Dawes, Ala., July 10.

E. M. DOWNER.

[There is no difference, so far as we know, between Northern and Southern bees. They will work just as well in one locality as another, providing there is honey to be gathered. Some strains of bees, notably the darker ones, it is thought, will stand the cold winters in the North better than the extra-yellow bees from the tropics, but the difference is very slight if any.—Ed.]

Our Homes

A. I. Root

I have been young, and now am old; yet I have not seen the righteous forsaken, nor his seed begging bread.—PSALM 37:25.

His leaf also shall not wither; and whatsoever he doeth shall prosper.—PSALM 1:3.

I want to talk to the younger ones, and perhaps some of the older ones also, in regard to the matter of "good luck." On another page I speak about lucky stones. So many people still continue to believe in that sort of good luck that *over a hundred* testimonials are given. Of course, I do not know whether the testimonials are genuine or not; but I *do* know that quite a number of good people carry senseless things in their pockets or on their watch-fob, to bring good luck. Our older readers, at least, have heard about its being a lucky thing to find a horseshoe. Well, if you have a horse lacking a shoe, and the shoe you find just fits, it may be what is called good luck; and I do not know but it is true that the man who is picking up and saving horseshoes, or any thing else lying around loose, may be more "lucky," as the world expresses it, than the man who lets valuable property and material lie about loose here and there. It has always been my fashion, especially around our own premises, to pick up and put away horseshoes, pieces of iron piping, bits of wire, both iron and insulated copper wire such as the electricians scatter about; and I have a faculty of remembering where I put these things. Pieces of iron wire I hang on the fence near the gate; and then when a bit of wire is needed in an emergency I can almost always lay my hand on it quickly. Such a habit, without question, *brings* good luck.

Years ago, when lotteries were permitted to flourish in our land, there was much said about lucky numbers; and we were told that some people were always lucky in investing in lotteries. My feeling has always been, however, that the person who secures prizes by investing in a lottery is really the unlucky one. Money that comes in that way, or without hard earnest labor, often proves a curse rather than a blessing. Captain Rand, in advertising his lucky pebbles, says that one who has one of those pebbles in his pocket will always prosper, no matter what he invests in or goes into. He does not exactly quote scripture to prove it, but what he states is something like one of the texts I have chosen—"Whatsoever he doeth shall prosper." And, my good friends, both young and old, I am glad to be able to tell you this bright summer morning *how* to be lucky and prosperous in all you undertake. That beautiful first Psalm, which

I have often quoted, and which, it seems to me, must have been written when David was comparatively young, sounds boyish in its bright hopefulness. Now, then, what are we to do and how are we to live so that all our undertakings will be prosperous? May be you had better get your Bible and look over that first Psalm with me. First, you are to keep out of bad company. You are not to walk with them, nor stand still in a bad crowd; and you certainly will not be lucky if you sit down and visit with those who pick at the faults of Christians, and make fun of God's holy word.

Years ago our boy Ernest had a playmate who lived near by. One day his mother heard Ernest using bad words. She asked where he had learned them. When he told her she told him he would have to stop playing with Edson if Edson persisted in such talk. Edson came around pretty soon and asked why Ernest would not come out and play any more. Ernest told him of the trouble; and after a while Edson was induced to give up his bad talk, because he found out that Ernest would go straight home when he used swear words. Later on, an acquaintance of mine was apparently thoroughly converted; he gave up drinking, and promised to lead a new life. But after a time, however, he was seen among his old comrades. When we remonstrated, he replied that it was pretty tough to know that he could not see his old friends, and sit down and talk with them. He said some of them might be made better men. Accordingly he would go into a saloon and sit down and talk with his old boon companions. I hardly need tell you how it turned out. It transpired, as we have it in that first Psalm, that it is exceedingly dangerous to "sit in the seat of the scornful."

The next verse tells us what a man ought to do to be lucky. It says, "His delight is in the law of the Lord." The law of the Lord is this precious book that I am now holding in my hand. And we are further told of this prosperous man that "in his law doth he meditate day and night." There you have it, friends. If you wish to be prosperous, if you are striving for good luck in your undertakings, just make this book your lucky stone. Use it as the iron-clad pledge of the Endeavor Society reads, "I promise to read my Bible every day." Not only are you to read it every day, but you are to make it your constant study "both day and night." If you do this you will eventually grow like a tree "planted by the rivers of water." I thought of it

when Dr. E. F. Phillips told me the dasheens grew in those far-off islands of the sea with their little white roots reaching over into a rivulet of water. "His leaf also shall not wither." How many times we feel blue and troubled when it does not rain, and the leaves of our crops begin to wither and turn yellow! When there is plenty of rain, however, as we have had this season (throughout Ohio and Michigan at least), there is no withering of the foliage. It is like my garden and the beautiful dasheens with their leaves a foot and a half across, on this last day of July, 1913. Then David goes on to say, "The ungodly are not so." They may prosper for a time, but sooner or later they are gone, and their memory is forgotten, "like the chaff which the wind driveth away."

As I come nearer to my 74th birthday, and look back over the record of my friends and acquaintances, those who ridiculed God's holy laws are gone and forgotten. Not so with those who labored for righteousness and the good of humanity. Their memory still lives, and their work goes on. Children brought up in godly homes take up the work of their fathers and mothers, "and their works do follow them."

My good friends, have you a Bible of *your own*? Are you reading and listening to its counsels every day? Have you discovered that, although there may be a great deal in it that you do not as yet understand,

that it shows forth on every page that it is the word of God and not of man? that it holds up the highest type of character of any book in the world. It enjoins righteousness, temperance, and purity, and protests vehemently against selfishness and every thing that is low and ignoble. Are you making that book the book of all books? and is your main delight "in the law of the Lord"?

At Traverse City I was agreeably pleased to find a young friend of mine who had just taken charge of one of the prominent hotels of the town. Owing to the number of travelers who wanted lodging all at once at a late hour, there was difficulty about finding rooms for all. But just as I prepared to retire I had another pleasant surprise in finding a nice substantial Bible with plain clear print on my table. Just inside of the cover was a mention of the Gideon Band of traveling men who had raised the money and taken the trouble to place such a Bible in the sleeping-rooms of every hotel in our land. You may recall the fact that I mentioned a carload that went to Chicago for this purpose. God bless the Gideon Band. If they do not get back the money they have expended in this missionary work they will get back something of more value than money, for they have indeed been "laying up treasures in *heaven*" as well as here on earth.

Notes of Travel

THE OLD "CABIN IN THE WOODS" ONCE MORE.

It is now just about two years since I visited our cabin in the woods on Grand Traverse Bay—the place that figured so largely in our Home papers some ten or twelve years ago. Northern Michigan is a great rendezvous for campers during the hot weather; and when the Ann Arbor railway announced an excursion trip from Toledo to Traverse City and back for only \$5.00, right during the extremely hot weather of the latter part of July, a great lot of people responded. There were something over 500 on the train on the 24th of July.

Our readers may not be aware that the Ann Arbor Railway Co. was progressive enough two years ago to start motor cars twice a day from Toledo, Ohio, to Cadillac, Mich. These motor cars are much like the electric cars, but larger, and they are propelled by a gasoline-engine on each car. They not only have regular stopping-places about a mile apart, but, if I am correct, they stop and take in anybody anywhere who is tired of going on foot. These motor

cars are not only a great convenience to people all along the way, but they enable their steam-drawn cars to run something on the plan of the "limited," stopping only at the larger stations. The motors, you see, pick up passengers and leave them at the regular stopping-places for the steam cars, in the larger towns. Each car contains, besides the engine-room, a smoking-room, and very nice accommodations for 83 people. As they have been in successful operation for two years, they probably will continue.

I was agreeably pleased to see a great improvement in agriculture all along the railway. The sandy soil of Northern Michigan has long been considered a difficult problem, even for the Michigan Experiment Station. On my trip I found greatly improved dwelling-places as well as better crops of corn and potatoes, oats, and sometimes very fair wheat all along the way. When I got above Traverse City, on the shores of Grand Traverse Bay, I found cornfields that not only rivaled our best corn-growing districts in Ohio, but some of

them were even further ahead. It is a little sad, however, to find all over our country that the expert and progressive farmers are in the minority. It is so down in Florida, and it is so all the way from Florida to Ohio, and all through Ohio. Here and there we find men who are able to "do things," and who shoot up ahead of the rest. I have faith to believe, however, that the coming generation are catching on to the state of affairs, and are making better. Surely our agricultural colleges and our experiment stations where boys are taught "sense and science," ought to be producing some satisfactory results by this time.

In times past I have frequently mentioned my friend James Hilbert. Ten years or more ago I began to urge Mr. Hilbert to test alfalfa. In fact, there was a small field of alfalfa between his place and mine; but he had so many different hobbies—strawberries, raspberries, peaches, cherries, etc., that I could not get him interested. On this visit, however, I was most happily surprised to see beautiful green fields of alfalfa growing with surprising vigor—about ten acres in all; and as the fields of it dotted over his farm in different places it was a magnificent sight—at least to me. His first field is now about three years old, and it has given him an enormous amount of feed; and the plants seem to be getting stronger and more vigorous year by year. He succeeded in pulling up a plant, but where it broke off, about three feet down, it was almost the size of one's little finger.

The great secret of alfalfa holding out through protracted drouth is that it sends the vigorous tap-roots far down to permanent moisture. There are some stories to the effect of the roots going down into a well thirty or forty feet. Mr. Hilbert says one great reason why there is not more alfalfa grown in the Grand Traverse region is that the farmers must learn the secret of getting a stand or a "catch," as it is called. The field should be in good fertility, and as free as possible from weeds. In that region seed is usually sown in June or July, and you want the nitrogen bacteria. You may have seen something advertised in the journals called formagen; and they are sending a little bottle of the bacteria-forming material for \$2.00. This is enough for an acre. Now, the Michigan Agricultural College has taken hold of the matter, and issued a pamphlet on alfalfa, agreeing to furnish enough of this material for inoculating soil for 25 cents instead of \$2.00. And that is characteristic, I believe, of the Michigan station. I am in hopes that the experiment stations of other States are doing a like praiseworthy work for the farmers.

Mr. Hilbert bought one lot of alfalfa seed that was, a considerable part of it, sweet-clover seed, and where there was a good stand of alfalfa in full bloom, and forming seed rapidly, there is also a pretty fair stand of sweet clover, about as high as one's head, also in full bloom. Mr. Hilbert says that, although he got something he did not expect and did not order, he is well pleased with the sweet clover. Very likely it will be a great help in getting in the bacteria for the alfalfa, after the sweet clover is gone. He proposes to cut and thrash for seed, both crops at once. While he is not prepared to say that good alfalfa hay entirely cuts out the necessity for grain, he says it comes pretty near it. A progressive neighbor of his, I am told, has *forty acres*, and others are reported as getting the alfalfa fever.

I found a young friend of mine, whose farm joins my own forty acres, sowing alfalfa through his cornfields after the last cultivating. This is something of an experiment, it is true; but it may turn out all right.

They have been having very opportune rains all summer up there, which accounts largely for the general prosperity. The beautiful soil on the sandy hills enables them to grow nicer potatoes up there quicker than we get them here in Ohio, for I found new potatoes at about every place I stopped.

Now for a glimpse of the premises around the cabin in the woods. It had been two years since I set foot on the place, and five or six years since I gave my young fruit-trees any care. What is the result? The peach trees are mostly dead or dying. They would, perhaps, have survived the cold winter of 1911 and '12 had they been properly pruned, mulched, etc. The apple trees, however, are doing fairly well; and a Yellow Transparent tree was so loaded down with fruit that some of the branches were lying in the grass. The apples were just beginning to ripen. It was somewhat a question of what things would survive such neglect. About ten years ago I planted fourteen different kinds of currants—a bush of each kind. Almost every currant-bush lived in spite of grass and weeds, and most of them were bearing fair crops, some of them heavily loaded. A row of asparagus-plants were looking as thrifty, almost, as if they had had cultivation. A widow has the place in charge; but she was so busy with her own farm a good deal of the stuff was never gathered. A grapevine had climbed into a mulberry tree, and some beautiful clusters of grapes were growing side by side with the mulberries. The tame raspberries I

planted had been mostly run out by the native sort. But not so with the blackberries. They had survived, and were bending to the ground with great masses of green fruit.

This is a wonderful region for red raspberries, and I am going to talk a little at length about the red raspberries in Northern Michigan. My good friend J. Palmer, who is also a subscriber to GLEANINGS, has about the prettiest raspberry-farm I ever saw. There are acres of great clumps of Cuthbert raspberries, all just alike; and we arrived there just while a dozen or more boys and girls, men and women, were picking the fruit. When we first drove up I suggested to my friend who was driving that we would find Mr. Palmer sooner if we inquired of "that boy in the cherry tree close by the road;" but when said boy looked up to give us directions, there was a roughish smile on his face; and I could not understand why he should blush until his face took on almost the same color as the cherries until a lady at my side suggested that said *boy* was a *girl* wearing overalls so she could climb around where the cherries were thickest. Now, that is all right, especially if the father or mother were somewhere near by. She was quite young, and any sort of skirts would be more or less a hindrance in climbing among the branches of a cherry tree bending down with ripened fruit. When she comes down out of the tree she no doubt has some sort of skirt to slip on before she goes around among people.

Well, friend Palmer took great pride in showing us over his plantation. He invited us to go out where the berries had not been picked; and, didn't we have a "picnic" that afternoon? Then he showed us a model cherry tree loaded down with the most luscious fruit; and we ate more cherries after we thought we had had plenty of red raspberries. The raspberries on his cultivated ground were beautiful, large, and luscious fruit; and I think he is getting a price that will pay well for all his time and trouble. When I asked him about maintaining such fertility on the ground I used to think was almost "no good," as it is so full of sand and gravel, he pointed to a field of clover, rank, luxuriant, and full of bloom. Turning under clover is the secret. A big swarm of bees that had been hived near the cherry tree also attracted our attention.

While red raspberries are found all over the woods in Northern Michigan, right up around our cabin they were so dead ripe that they rattled down on the forest leaves whenever we touched a bush. Of course, the wild ones are not as good, nor as a rule as large, as the cultivated Cuthberts.

While I am talking about raspberries, let me remark that, as we were approaching the city of Cadillac, I wondered why the train should stop right out in the woods where there was no station. We soon understood it, however, for a dozen or more women and rosy-cheeked girls climbed into the car, each one holding a basket or dishpan heaping full of wild red raspberries. The obliging conductor of the train had carried them out into the wilderness in the morning and stopped to pick them up with their loads of berries about six o'clock in the afternoon. Now just a little more about red raspberries.

Freddie Heimforth, the eighteen-year-old son of the widow who has charge of my place, has three colonies of bees. One of the three has already given *ninety sections* of comb honey, besides sending out a rousing swarm; and as the honey was coming in when I left he will probably get more yet. Well, Freddie picked out a section from the ninety—one that was quite a little travel-stained. The honey was thoroughly ripened. I had finished breakfast, and I thought I did not care for any honey. But he cut out perhaps a quarter of a section. It was so thick it would hardly run, and was a beautiful golden yellow. Now, beside my plate was a bowl full of mush made of cream of wheat. My breakfast was so ample and satisfying that I had not got around to the cream of wheat; but when I tasted that honey, not seeing any bread and butter, I took a spoonful of the mush. Do you remember what Ernest said a while ago about cracked-wheat muffins and nice honey? Well, I just recalled it when I tasted that mush with the honey. A part of a glass of milk that I had left stood near by; and I not only ate all of that honey and drank all of that bowl of milk, but I was so full of enthusiasm for the raspberry honey of Northern Michigan that I felt just like saying it was the very nicest honey I ever tasted. Mrs. Root, however, reminds me that I have said the same thing so many times before that nobody will believe me if I say it again. Did such a big breakfast make me sick? Not a bit.

I kept inquiring all around about that Sunday-school over among the hills that I started thirteen years ago. The people told me it was still going, and that it had been running all these years, winter and summer; but they guessed a good many didn't go of late. So, after my hearty breakfast I started out to invite the people I knew to come to Sunday-school next day. I told them I was going to talk a little while. Well, I told you before about the great hills—the biggest hills, if I am correct, in all

Northern Michigan. In order to get over to that little church down among the hills I was obliged to climb the hills on my own premises. Ten years ago it made me very tired, and I sometimes had to sit down and rest on the top of the big hill. But on this particular Saturday I not only walked up the hill, but I pulled off my cap (my coat was left behind) and *ran* uphill, and I did not mind it a bit. I was so rejoiced that I had *gained* strength and muscle, in spite of the fact that I am just approaching 74, that I shouted praises to God. Nobody was near, for I was off in the wilderness; and I kept climbing up and down hills from one neighbor to another all that Saturday afternoon, and I did not get tired a bit. What is it the good book says that comes in right here?

They that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; and they shall walk, and not faint.

Do you ask me who it is, or what people shall have unusual strength? Let me quote further: "They that wait upon the Lord shall *renew* their strength." And it occurs to me that, if the text did not hit me exactly, it came pretty near it, for I was inviting people right and left to come over to the Sunday-school and the preaching service next day. It was a bright and beautiful Sunday when we gathered around that Bingham church. The first thing that greeted me was a row of sheds for horses and buggies—about the neatest and most comfortable sheds for protecting horses (and perhaps automobiles) from the wintry blasts of Northern Michigan that I ever saw. When I was congratulating the men folks on what they had done to enable people to get out to church on stormy Sundays my good friend Mrs. Wilson, who has been all these years superintendent of the Sunday-school, informed me that the *men* did not build the sheds. I turned to her in astonishment and said, "Why, Mrs. Wilson, if the men folks of this community did not build those comfortable sheds, who did build them?"

"Why," she replied laughingly, "they were built by the ladies' aid society. Of course the men came in and helped after we had started the thing going, as they almost always do."

Her bright animated smile intimated that she had no grievance against the men folks. As the back of the shed was built against the sandy bank it was all cement and cobblestone. After this cement wall was put up, the sand and gravel were banked all around so it would be a very comfortable place on a stormy Sunday, especially when

the sun shone in at the open south side. A flower-bed that I made and planted contained some poppies; but the other plants were mostly gone, from the fact that the good woman who kept it for so many years had been called to her heavenly home. I talked to the Sunday-school about what I have given in Our Homes in this issue.

Speaking about cement walls reminds me that my good friend Hilbert has a lot of hot-beds or cold-frames made entirely of cement, of course with glass sashes on top. In these beds he starts cabbage, cantaloupes, tomatoes, and other stuff to get an early market for Traverse City before anybody else. He was just selling Early Jersey Wakefield cabbages at 8 cts. per lb., because he had the first on the market, and because his cabbage was so much superior to that shipped in from Florida. He set out in the field 1400 hills of choice cantaloupe melons, and they were just setting fair-sized melons. His tomato-plants were loaded with green fruit, some of it big enough to be ripe; and an up-to-date motor truck carries his produce about nine miles to the city. Mr. Wilson, the husband of the good woman who is superintendent of the Sunday-school (and who kept it up winter and summer), has a fine farm of 200 acres. He is a crank on growing apples, and expert in grafting. His cornfields are about the cleanest and handsomest I ever saw; and when I looked over the prettiest kitchen garden interspersed with flowers here and there I asked my young companion, Jimmie Draper, eleven years old, "Why, Jimmie, who took such excellent care of this beautiful garden?"

He replied, "Why, Mr. Root, I think it was my mother and grandmother. My pa does the cultivating, but the women-folks do the rest."

I have told you about some of the crops in that beautiful county of Leelanau, Michigan. But there is one crop I did not mention—at least I did not say much about it. Young Mr. Wilson, whose farm adjoins mine, has three beautiful little girls and a boy. Mr. Draper, a son-in-law of Mrs. Wilson, superintendent, has also three beautiful little girls and a boy. The boy took me through the garden.

When I gave them my talk after Sunday-school I asked them if the Endeavor Society was still kept up. There were many affirmative nods from my smiling audience.

"When do they hold meeting?" I asked.

Somebody replied, "Right after Sunday-school."

Then I concluded I would have to make my talk short. Well, who do you suppose led the Endeavor meeting? Why, a bright

young woman who had a baby in her arms. When she led the meeting she deposited the baby on the floor back of the pulpit, and there he lay during the meeting as contented and happy as could be. I congratulated her on having succeeded so well in shouldering her double responsibility. Oh, if all the married people in our land would care enough for the church and Sunday-school to go and take the baby along, what a blessed thing it would be! and what a grand start it would give that baby to get familiar with the Sunday-school before he is even a scholar! We had an excellent sermon in the evening with a crowded house. The text was, "Bring up a child in the way he should go, and when he is old he will not depart from it."

OBJECTIONABLE FEATURES IN REGARD TO COMING TO FLORIDA IN THE WINTER, ETC.

Mrs. Root has suggested to me several times when I am writing up all the nice things about southern Florida that, to be fair and honest, I should also tell of the objections. One morning we counted up four things that were more or less objectionable in regard to coming here. First and foremost is the redbug that I have said so much about. Last winter we were troubled almost none at all—at least not until warm weather came in March and April. This winter they seemed to be unusually bad from the time we came here, about the first of November, until almost up to Jan. 1. Since that they seem to have let up considerably for some reason or other. Now, after trying a great variety of remedies, one given me by my good friend neighbor Abbot, I think, is simpler and perhaps more effective than any thing else. It is simply this: Take a daily bath in the morning, and before you put on your clothing rub yourself over pretty well with soapy water and let it dry on instead of wiping it off. You may object to this sort of treatment; but I have used it now for several weeks, and can not discover any ill effects. Of course, the soap is nicely and thoroughly washed off when you take your next bath; and after the bugs seem to let up, or you are not obliged to go out among the grass or bushes or in the woods, you can omit it. By the way, people living in town, who do not go out among the dry grass, and brush against the palmettos or run against rotten logs in the woods, are seldom troubled at all. By staying away from the country, and especially keeping out of the fields and lots where there isn't a trodden path, you will have very little trouble.

The next trouble I am going to mention will make you smile a little. It is mud-wasps. During the past six or seven winters that we have passed in Florida we have not noticed them very much until during this past winter. With the excessive rains of the past summer it seems as if the wasps must have been more plentifully supplied with mud for building their nests than ever before. You may wonder what harm they do by building these mud nests. Let me digress a little to explain. Mrs. Root has all along wanted some kind of blinds or shutters to our windows. The sun here in Florida gets to be pretty hot, even in December, January, and February, and she thought it would be a fine thing to have the windows shaded when we go home in the summer so that the sun may not come through the glass and injure the floors and every thing else that it strikes. Of course, you can put up curtains to the windows; but after having tried curtains, even cheap cloth ones, such as we should like to leave while gone, and having what they call the "silver moths" eat them all to shreds, we abandoned the curtains. These mud-wasps seem to take it for granted that the green blinds put on our windows were just there on purpose for them to build their mud houses all over the inside. In fact, some of our window shutters were so plastered that we could not possibly open and shut them. It was a real task to "chisel" out the mud so as to get them down and clean out the debris. They built their mud houses all over my tool-house, stuck things together, and even made quite a big mud nest on the under side of the cover to my automobile; and at every turn we find all sorts of utensils and every thing else stuck together by wasps. There is, however, a redeeming feature, as there is with almost every nuisance that we meet in this world of ours. The redeeming feature is that the mud-wasps are fierce enemies to common house-flies, and they clean out the flies so effectually that there has been scarcely a fly visible, outdoors or in, so far this winter. Very likely the wasps are bad only during particular seasons or at certain times; and it is true that we have never seen them any thing like as bad as during the past winter, or, rather, the work, perhaps, that was done during the past summer. As I have suggested, perhaps the dampness may have had something to do with it. After hearing the above, Mrs. Root says I have not put it strong enough. The blinds and windows-sashes to some windows were so plastered with mud nests they could not be stirred "a peg" until the nests were "chiseled" out. Then we sandpapered the

woodwork and painted it over. This is probably one reason why so few *slatted* blinds are seen in Florida.

I have just alluded to the silver moths, and they certainly are a pest here, and no mistake. Every thing woolen must be carefully tied up in a paper bag or protected some way, for they would be sure to eat it to shreds. Of course, moth-balls are something of a remedy, but not entirely so. Where we kept quite a quantity of moth-balls, there were very few silver moths.

This leads me to my third objectionable feature here in Florida—the roaches. I believe these are sometimes called cockroaches, but I don't just like that name. The ones we have down here are much larger than those commonly seen in the North—at least they are larger than any I have ever seen there. They are so big that they make a pretty good bite for chickens when thrown to them, as poultry are very fond of them. They are great black bugs, but very *thin*. I suppose they are thin on purpose so they can slide through small cracks between doors, windows, and almost anywhere else. On account of their thinness, and their habit of pushing in to almost every crack or crevice, it seems almost impossible to "fence them out." Of course, there are poisons for them, because they are voracious eaters; but if you poison the cockroaches and throw them to the chickens the poison will kill the chickens also, so there is not very much poisoning done here. Cockroaches are a nuisance, because they are always hungry for any thing in the line of starch or mucilage. They make it their principal business in life to eat up the papers and wrappers, or any thing that is pasted on to a box, bottle, jar, or any thing else. I even had a little bottle with a label "Strychnine" pasted on it, and about the first thing they did was to eat off the label. I suppose they thought if they got the label off they would be immune to the effects of the poison, which proceeding is, after all, about as sensible as some of the remedies that some human beings take for the ills that affect humanity. Now, we have found by experience that there is no use trying to label any thing down here. It seems as though they have a mania to hunt up the most important words in the label and eat that out first. When you come to examine your medicine, eatables, etc., that have been carefully labeled and put away, you will find that the labels are not readable on account of the cockroaches. I am not quite sure, but I think that, when they can not find any thing else to eat, there are certain kinds of paper that have something in their makeup which they manage to subsist

on; for it seems to be a passion with them to riddle every thing in the line of books and papers that they can get at. The redeeming feature of the cockroaches is that they are such excellent food for poultry; and if poultry could be allowed to run around the house they would thin them out to a great extent.

There is only one other drawback that I think of just now, and that is the Florida mosquitoes. I am glad to say, however, that there have been very few of them here this winter. In fact, I have never been troubled any winter with the mosquitoes in our neighborhood. Mrs. Root says, however, that a mosquito will find her if they do not seem to find anybody else; but by keeping our doors and windows carefully screened it is seldom that a mosquito gets inside the house. There is, however, something else along that line that I find exceedingly annoying—the little bits of gnats, almost invisible, or what I suppose are sometimes called sandflies. If you have any especial work that you are very much interested in that is worrying you and making you nervous, it seems as if these gnats take especial pains to get in *their* work at just that time, and make life almost unbearable. For instance, if you are at work at the automobile, and something puzzles you, and you are in a great hurry; also suppose that your hands are so smeared with black grease that you can not touch your face or nose or ears, or any part of your clothing; suppose, also, that you are getting "sweaty under the collar," then just at these times it seems as if they took especial delight in taking advantage of you. Let me say, however, that they are seldom troublesome unless it is about sundown and at the close of day. I have known them also to be very annoying at certain times early in the morning when we have muggy rainy weather. Sometimes, when I find it time to gather my eggs, and am a little late about it, these pests seem almost unbearable; and if it were not for that precious remedy that I have several times mentioned, and which has also been mentioned in our government bulletins, the "oil of citronella," I don't know how I could get along. We have two little bottles of it, one in the cupboard and one out in our tool-house. These ounce bottles, bottle and all, cost only ten cents, so it is not a very expensive matter to have plenty of the oil of citronella close by. I simply take out the cork, press the mouth of the bottle on the palm of my hand, put it back, and put in the cork. Rub the palms of the two hands together, then take a rub around your neck, over your eyes, and on your forehead,

another around your wrists and backs of your hands, and the sandflies will bid you good-by. Sometimes in the evening, when I want to work in the garden I should really have to give it up if were not possible to go to my bottle of citronella. After applying that as directed above, I can go on and work in peace and quietness. Citronella is used, I am told, largely by hunters and fishermen, and it seems to be a perfect remedy for almost all sorts of insect pests. In fact, it keeps off the redbugs I spoke of very well if you rub some of it around your ankles and the tops of your shoes before you go out to work in the fields.

I forgot to say in the proper place that mosquitoes are very annoying to babies unless the house is screened and protected, so that you can keep them out. A great many people come into Florida to spend the winter. To save the expense of renting, they build little cheap houses. In fact, there is no end to the cabins and houses, all the way from almost nothing up to the fine houses that we find here. The people who bring babies into these little houses, where there is no way of fencing off the insect pests, often find themselves in serious trouble, or at least the babies do, and some of the poor little innocents have their little lives almost worried out by these insect pests if some means is not taken to keep them away.

SWEET CLOVER; HOW THE "NOXIOUS WEED" IS COMING TO ITS OWN.

We copy the following from a little poster mailed us by our good friend Frank Coverdale:

SWEET-CLOVER PICNIC.

Have you seen a sweet-clover pasture? Have you seen sweet-clover hay? Have you seen washouts held by sweet-clover roots? Have you seen the effect of ground limestone on sour soil? Are you interested in these things? If you are interested, come to the farm of Frank Coverdale, four miles southwest of Delmar, on Tuesday, July 29, 1913.

Bring your family and a picnic dinner. We will meet at eleven o'clock, have a picnic dinner in the woods, listen to a short program, and then spend the afternoon seeing the one hundred or more acres of sweet clover on this farm, which has become known all over the United States. Sweet clover is being used on this farm as a pasture, and a hay and seed crop. Mr. Coverdale has some small test plots which show very plainly the value of ground limestone in sweetening the soil and making crops grow better. No one has a better opportunity than the Clinton County people to see just what the sweet clover is good for. Don't take anybody's word for it. Come and see.

Bureau of Plant Industry of U. S. Department of Agriculture, Iowa State College of Agriculture, Agricultural Committee of Clinton Commercial Club, cooperating.

Of course the date, July 29, has gone by; but we give the contents of the above poster to let you see how the Department of Agriculture, Washington, as well as the Iowa

State Agricultural College, recognizes the value of sweet clover to the nation at large.

A full report of the proceedings of this sweet-clover picnic will be found in the new edition of our little book, now in press, "The Truth about Sweet Clover."

SWEET CLOVER; CHICKENS CATCHING DRONES, ETC.

Find enclosed a stamp for which please mail me any literature that you have regarding sweet clover. I believe you had a book entitled "The Truth about Sweet Clover." I met a very intelligent farmer here who wishes to find out something regarding it with a view to sowing, but he had been told that he could never get it off his farm if he got it on.

I have read in GLEANINGS several times about chickens eating bees. I have some chickens about a month old that are smarter than any I have read about. A few days ago there was a scarcity of honey; and the bees, being in box hives that I had not yet transferred, had lots of drones, and those chickens would wait until they saw a worker bring out a drone, and then they would grab the drone. They could also tell the drones on the wing. I watched them do this two different times. There appeared to be only two chickens that bothered them, and in no case did I see them touch a worker; but they seemed to be afraid of them.

So far I think the honey-flow very light here; but as to what is to come I know nothing, as this is my first year here.

Vivian, La., June 25.

C. E. HAMMOND.

We are sorry to tell you that our little book on sweet clover is out of print; but we are working on a new edition, and will get it in the hands of our friends as soon as possible.

Tell that "intelligent farmer" that he is certainly behind the times in one respect. It is true that sweet clover was once called by some people a noxious weed, but that time is past. Consult your experiment stations or almost any agricultural paper printed, and they will tell you that sweet clover is now recognized as being next to alfalfa. In fact, it prepares the soil for growing alfalfa better than any thing else in the world. Because domestic animals have to be taught to eat sweet clover at first has given ground to this notion. After they once get a taste for it they prefer it to any other clover; and the best thing about it is that it will grow on ground where no other clover will grow, and, in fact, where *nothing else* will grow; and after having grown it inoculates the soil with nitrogen bacteria so that almost any other crop can be grown profitably. It is now being recognized and grown all over the world.

As long as you can keep the two chickens that take the drones but not the workers they will be a valuable asset, and you had better hold on to them.

18,000 SALOONS OUT OF BUSINESS IN ONE YEAR.

That the dry movement in America is gaining ground is shown in the annual report of the Internal Revenue Department at Washington, for the fiscal year ending June 30. It shows that 18,000 saloons suspended business during the year.—*Wheeling Advance*.

Gleanings in Bee Culture

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Editorial

THE COVER PICTURE.

THE front cover of this issue shows in the background our Ault sidehill apiary where Inspector Morris made the remark that he would have to saw off one of his legs and splice it on to the other in order to inspect the bees. The sidehill is so steep that the cattle can not go up it if they would. The yard faces the south; and during cool or chilly days these bees will gather nectar or pollen when there is little or nothing doing at the other yards. The picture was taken with a Telephoto lens a considerable distance away.

ARRANGING DATES OF CONVENTIONS SO THEY WILL NOT CONFLICT.

In our last issue, page 558, in the editorial department, we suggested that the National Beekeepers' Association make some arrangement whereby the time of holding the various State and local conventions could be arranged on consecutive dates to enable certain prominent beekeepers to attend one or more of these meetings. We sent a proof of this editorial to Dr. Gates, and received his reply too late to be incorporated with the editorial above mentioned.

Dear Mr. Root:—I have just received the proof of your editorial concerning circuit conventions. It is excellent. I presume you were not present when a similar scheme was proposed at Cincinnati. I brought up the question of a series of meetings on consecutive dates in different quarters of the country under the auspices of the National. It seems to me this should be one of its chief functions. I recall Mr. Dadant's remarks in reply to what I said, but the time was not opportune to take action.

In Massachusetts, where monthly meetings are held, it could be well arranged to have one of these under the auspices of the National. I think this would be quite agreeable to the local societies. In fact, I am now planning a circuit of local meetings under the auspices of the State Beekeepers' Association with which the local associations are affiliated.

I am taking opportunity to present to the Directors your suggestion for their consideration as soon as it shall have appeared. Have you any details as to the machinery I could utilize?

Amherst, Mass., July 28.

B. N. GATES.

If the secretaries of the various State and local associations will correspond with Dr. Gates we feel satisfied that the scheme of dating could be arranged so that Dr.

Phillips, for example, of the Bureau of Entomology, could attend several important meetings instead of one or two as in the past. By the way, Dr. Phillips did not make this suggestion, but we believe that many of our States would be able to secure his attendance if the dates were made consecutive.

THE APICULTURAL EXHIBIT SHOWN AT THE AGRICULTURAL COLLEGE AT AMHERST, MASS.

ON page 434, of July 1st issue, in giving our report of the State convention of Massachusetts beekeepers at Amherst we referred to some very interesting exhibits that were prepared by Dr. Burton N. Gates and his students at the apicultural school. These exhibits were placed in one of the large rooms, and comprised a large list of beekeepers' supplies from several manufacturers, various apicultural novelties, old relics of bygone days, and bees and honey in various forms. This was one of the most instructive and elaborate exhibits of bee supplies and bee products that was ever given in the United States. The hope is that Dr. Gates may arrange to have a similar exhibit for the National convention the coming fall or winter.

Elsewhere in this issue we have given several views showing the exhibits as they were shown at Amherst. The only regret is that thousands instead of hundreds of beekeepers could not have seen it. As it is, we are trying to show it to thousands on paper. See pages 607, 608, and 609 this issue.

THE PREVENTION OF SWARMING IN THE PRODUCTION OF COMB HONEY; HOW IT CAN BE REDUCED TO TWO OR THREE PER CENT WITH REGULAR STANDARD HIVES.

A YEAR or so ago we illustrated Mr. Vernon Burt's scheme for the prevention of swarming when running for comb honey. At that time Mr. Burt was very much pleased, saying that he believed it would solve the swarming problem for him. The plan is, in brief, nothing more nor less than putting four $\frac{7}{8}$ -in. blocks under each corner,

between the brood-nest and bottom. This gives an entrance $\frac{7}{8}$ inch deep on two sides and the back end and in front, enlarging the entrance about $\frac{7}{8}$ inch more. You will find this plan illustrated and described in our A B C and X Y Z; and in this issue, page 610. Said Mr. Burt: "I do not have over two or three per cent of swarms; and, what is more, I do not even stop to cut out the cells. Yes, it does away with the nuisance of cell-cutting, and what few swarms I get can be easily handled."

Inspector Morris was along. Said he, "Mr. Root, that plan looks mighty good to me. If I know myself I shall be using it next season."

We have found Mr. Burt to be almost unerring in his opinions. He is slow to come to a conclusion; but when he does he is nearly always right.

It has been stated by authorities that swarming comes as a result of overcrowding, particularly of overheating the brood. The remedy, obviously, may be applied in one of two ways—reducing the force of bees by swarming or dividing; or, second, cooling off the brood-chamber by ventilation. This may be accomplished by the method illustrated on page 610 of this issue, or by the use of slatted dividers, *a la* Aspinwall. Whether the four-entrance scheme is as good as the Aspinwall we are not prepared to say. But certain it is, that Mr. Burt says he can eliminate all but two per cent by the simple expedient of raising the hive up on four blocks. Nothing else is needed—not even cell-cutting.

Others have advocated the plan, and have spoken highly in its praise. It is worth thinking about, brethren; and it is worth giving a thorough trial next summer.

The four little blocks would cost less than a cent, and the time taken to apply them not over a cent. Good investment! especially when it sometimes costs all a swarm is worth to get it out of a tree, sometimes, to say nothing about the loss of honey due to the loafing period just preceding swarming.

TWO VIRGINS LIVING PEACEABLY IN THE SAME HIVE.

We have just run across a case of two virgins in the same hive. The history of the case is as follows: On July 31 we introduced a ripe cell in a protector to a three-frame nucleus, which we supposed was queenless. The combs contained some sealed brood, but no unsealed brood. The cell was due to hatch the next day, August 1.

On August 8, in looking over the combs in this nucleus Mr. Marchant found this

virgin; and then, as he was about to place the comb back in the hive, to his astonishment he found another running about on the same comb and on the same side of the comb. The two virgins showed no tendency to fight, and all was peaceable.

Desiring to watch the outcome, Mr. Marchant looked over these combs each day. On Monday, August 11, he saw both virgins as usual early in the morning. About 10 o'clock, looking over the combs again, he could find but one of them at first, but finally located the other on the bottom-board, dead. Two hours before, both virgins had been running over the combs as unconcerned as usual.

There are three possible explanations: First, the nucleus, by some oversight, may have already had a virgin on July 31, when the cell was first introduced. The old virgin already in the hive, possibly because of some injury to the wings, had never mated, and was allowed to live, even with another virgin in the hive, until August 11, when the second virgin showed signs of having been mated, although she was not as yet laying.

Second, a young virgin returning from her flight from some other hive may have gotten into this hive by mistake. As she did not show signs of having been mated, her trip, if this supposition were correct, was evidently not a successful one.

Third, by an oversight there might have been a ripe cell in the hive at the time the second cell was introduced July 31. A cell from which a virgin had recently emerged on the opposite side of the comb seems to give weight to this theory. Unless by some mistake this cell in question, which the nucleus already had, had been put in just a day or two previous, the bees must have carried an egg from some other hive into the hive in question, for there had been no unsealed brood in these combs for some time.

The true explanation, we shall probably never know; but the fact remains that there were two virgins in the same hive for two or three days.

INTRODUCING OLD VIRGINS BY THE SMOKE PLAN; A SEVERE TEST.

The direct method of introducing with smoke according to the Arthur C. Miller plan as given in the June 1st issue, p. 370, was given a most severe test in one of our yards recently. Our Mr. Marchant had twenty-three virgins, which, according to his records, were six days old. They were so old, in fact, that they would fly from the

age, some of them actually doing so, being caught in the air, and some too old to be readily accepted by the ordinary methods of introducing. These were introduced by the use of smoke, and in fifteen minutes the grass was removed from the entrances as has been described. Out of the twenty-three virgins, twenty-three were safely introduced. The fact that the queens were virgins, and *old virgins* at that, makes the test all the more severe. Twenty-one out of the twenty-three virgins have been checked up laying. These virgins evidently went out to mate the day after being introduced. They were checked up laying six days after being introduced.

The advantage of the plan is in the saving of time and the elimination of the mailing-cage—always a source of danger from disease. In the case of laying queens introduced by that method we have had them laying in a few hours. Those same queens, if introduced by the cage plan, could not have been laying under 48 hours at least.

Mr. Marchant believes that there is one drawback in the plan; and that is in case of, say, a four-frame nucleus in a full-size hive. The great amount of space outside the division-board furnishes a retreating-place for the virgin if she is scared; and when the hive clears of smoke the bees may ball the virgin if she is sneaking around in one of the remote corners of the empty space. In a hive no larger than an ordinary nucleus, so that the virgin must keep between the combs, there is little chance for failure.

Mr. Marchant says that he and his father have used the plan enough in the South in years past so that he can absolutely guarantee that the young queen is not injured by the smoke. If a queen is rolled in honey, and then allowed to run in to be cleaned off by the bees, she has a sleek greasy appearance like an old queen, owing to the fact that she has been literally licked by the bees. Mr. Marchant thinks that nine queens out of ten so introduced are likely to be superseded in the fall.

It might be well to suggest caution in the use of the smoke method. Don't overdo it. Too much smoke may permanently injure the bees and the queen.

WATER FOR BEES IN MAILING-CAGES AND FOR SHIPMENT BY EXPRESS; A BIG STRIDE IN ADVANCE.

OUR readers will remember that late last summer we made the discovery that bees could not be shipped without combs during hot weather unless they were supplied with water. When this was done the pound

packages of bees would go through with the loss of hardly a single bee. This year we continued our experiments, and later on will publish some hundred reports showing how we have sent bees from coast to coast, from Maine to British Columbia, to extreme points in the South, with the loss of only about a dozen bees in three-pound packages. We recently shipped some 20 lbs. of bees to British Columbia, with the loss of only a few dozen bees. When it is remembered that there are about 4500 bees to the pound, and that the entire shipment aggregated 135,000 bees, the ratio of loss is practically *nil*.

In some shipments of pound packages the water-bottles broke; and in other instances, where the supply of water gave out before arrival the bees either arrived all dead or with only a few survivors. The use of water in the shipment of bees by express without combs has been so satisfactory that we have been reviving the idea of using the small water-bottle in mailing-cages for queen-bees. Some of our older subscribers will remember how over thirty years ago A. I. Root was enthusiastic over the result of his experiments in giving bees water in the mailing-cages. We asked him to look up his early article on the subject, and in *Our Homes* for this issue is a reproduction of it.

We have just begun the use of water in mailing-cages for long distances. If it is good for long express shipments, why should it not be equally satisfactory for a few bees sent by mail?

Very recently we have been putting some homeopathic glass vials, containing water, over cages of bees in our office. The bottles were first filled with water, after which a small slit was made in the side of the cork, when it was pushed down level with the top of the bottle. This bottle was then inverted over the wire cloth of an ordinary mailing-cage of bees. The bees were thus enabled to run their tongues up in the slit in the cork and drink to their fill. We found that an ordinary cage of bees would use up a little vial of water (about a tablespoonful) every two weeks. So far we have been able to keep bees thus watered for a whole month, and at this writing they are as lively as when we first put them up. We have recently perfected a little tin box for holding water in a mailing-cage. This box is circular, and just neatly fills one of the candy holes. In the center is a small perforation through which bees can drink. While we would not advocate the use of water for *short* distances, yet for *long* distances we believe it will save the lives of a good many hundreds and even thousands of queens.

We have determined one fact; and that is, that a comparatively dry candy may be used providing the bees can have access to water. When no water is supplied it is imperative that the candy be soft and moist. If too moist it will dissolve and daub the bees; if too dry they will starve within a few hours. To make a candy just right is a fine art. If we can arrange to give the bees water while *en route* by mail, the softness or hardness of the candy would be of no material consequence. Indeed, we now believe we can use a dry hard candy. Details and engravings will be given later.

The question may be raised, "If the use of water proved to be so successful with A. I. Root thirty years ago, why did he abandon it?" First, his scheme of giving water was imperfect. Sometimes the water would be fed too fast, wet the candy, and kill the bees. Later on, Mr. I. R. Good solved the problem of bee food for mailings, as he thought, by making a soft candy, mixing sugar and honey into a stiff dough. This looked so good that A. I. Root dropped his water-bottle scheme and adopted the candy. This food proved to be so satisfactory that its use has continued up even to the present time; and the only substitute that has been offered is a "fondant," such as candy-makers use in some kinds of candy. But with many of these candies, it is well known that a large percentage of bees and queens by mail will die if confined more than ten days; so it is apparent that something is to be gained if we can devise some scheme that will supply bees water in the mails, not too fast, but just fast enough to give them food and drink. In the mean time, A. I. Root's article in the Home papers in this issue, written 35 years ago, will be read with interest. More anon.

THE HONEY-CROP REPORTS.

THERE is but very little to add to our honey-crop report as given on page 560, last issue, except to say that the drouth has been excessive in certain portions of the country. This may kill out the clover for next year; if so it will have a tendency to steady prices for this year. See what our Canadian correspondent has to say in this issue. In some parts of the West the newspapers have reported excessive drouth, but late rains have relieved the situation. Mr. Wesley Foster writes:

Colorado was very generally visited with rain during the third week of July. At Boulder we had almost too much rain. Delta, Montrose, and Montezuma counties in the western part of the State were not so blessed with moisture, and their August flow would have been better had they had several rains

or one real good one, but the bees were working quite satisfactorily Aug. 1st. Aug. 6th one of my colonies in Montezuma County was building comb in the cover up through four supers. August and part of September, if not all, can be counted upon to furnish honey in the Montezuma valley while we can expect little after Aug. 15th in Northern Colorado. Aug. 1st my bees in the Montezuma valley were supered, on the average, two supers to the hive, so that I expect a fair crop from them.

Frank Rauehuss, of the Colorado Honey-producers' Association, sends a night-letter telegram as follows:

Since our last report weather conditions and honey-flow have been good in most of the producing sections of the State. Season about over now. Crop as a whole is better in quality and quantity than last year.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, Colo., Aug. 24. F. RAUEHUSS, Mgr.

There has been no severe drouth in this section of Ohio, and we may say this for the whole State. It was beginning to be a little dry when we had a copious rain on the 21st, and this morning, the 22d. The ground is soaked, and the roads are muddy.

We have received a great many honey reports, but are unable to publish all of them; but here are a few of them that have been taken at random—good, bad, and indifferent. Most of them, however, are good. These reports may enable some of the beekeepers of the country to dispose of their crops.

Things were looking pretty good until the rains ceased, though we are yet hopeful of the cotton flow and what comes from late bloom.

J. H. AND J. T. CLARK.

Munford, Ala., C., July 21.

No honey this season in this part of the county. Escondido, Cal., S. W., July 9. J. A. NELSON.

This locality is a total failure—no surplus. Many beekeepers will have to feed to carry them over to another season. We had only five inches of rainfall last winter in the southwest part of San Diego Co. Otay, Cal., S. W., July 12. W. A. BALES.

This county (Tuolumne) will have less than half a crop of honey; 60 lbs. per colony for bees well cared for in 12-frame hives is about what I am getting in a good season. It is close to 20 gallons for like colonies. P. D. HEROLD.

Lonora, Cal., C., July 4.

My apiaries are enjoying a fine flow of nectar.

THOS. J. STANLEY.

Manzanola, Colo., S. E., June 19.

The indications are that we shall have a fair crop of honey.

HARVEY SAID.

Pueblo, Colo., C., July 29.

This is one of the best years we have had for honey since I have been in the business—something unusual for this section on white clover.

HENRY HARRISON.

Torrington, Conn., N. W., July 3.

Prospects are good at present for a fine crop in this vicinity. The flow is just commencing, June 20. Bees are weak on account of light stores, long winter, and cold spring.

H. L. BRATY.

Hayburn, Ida., S. C., June 22.

Fair crop of white clover. A. M. KECK.
Odon, Ind., S. W., June 24.

Replying to your request, I will report the clover-flow is very good, and the end is not yet. The never failing basswood is on in full blast, but the bees are staying with white clover, just as if they were getting paid for it. Nearly all beemen here have the old granddad boxes, and are not getting any honey. PERRY FRANKLIN.

Newcastle, Ind., E. C., July 11.

The white-clover honey-flow is light; alsike is some better, but our crop is rather short up to date.

MOSES C. MORGAN.

Blue Mound, Ill., C., June 27.

The honey crop is about one-third of the usual amount. Quality is good. It will not be over half a' crop at best. H. W. DOERR.

Beardstown, Ill., W. C., July 10.

There is a fine flow from clover, and I expect a large crop. R. B. RICE.

Mt. Carroll, Ill., N. W., July 16.

This is the best season we have had for many years—a fine yield from both white and sweet clover. Hoopston, Ill., E. C., July 21. G. T. WELLIS.

White clover is plentiful, but nectar is scarce. It will not be over half a crop of comb honey.

Brooklyn, Ia., S. W., July 7. B. H. TRIPP.

White clover is a good crop; basswood one-third.

H. R. BROWN.

Cedar Falls, Iowa, N. E., July 14.

Bees are doing finely on white clover; big crop of honey from them in this locality.

Atlantic, Ia., S. W., July 8. JOHN DUFFORD.

Honey crop is short. It seemed we were to have a good flow, but for some reason it was cut short. There is a small promise for a fall flow.

Center Point, Ia., N. C. GEO. W. FREY.

The honey-flow through June was good; about 75 lbs. per colony; but it ended July 1, two weeks sooner than usual. July was very dry. Weather bureau reports July the driest on record. Prospect is poor for a fall flow; for that reason we shall not dare extract too closely; must leave plenty for winter stores.

Dixon, Iowa, Aug. 2. E. A. DONBY.

The heaviest flow of white-clover honey is now on that was ever known in this vicinity; but as the bees were about all killed off in the three abnormal years just past, the bulk of the crop is going to waste. I had one standard ten-frame Langstroth hive filled and partly sealed in six days last week. The rest of my colonies are doing nearly as well. Symptoms are favorable for a flow from basswood this season. DR. A. F. BONNEY.

Buck Grove, Iowa, W. C., June 24.

Bad drouth here. White clover is cut short; no rain from April to June 30; feeding my bees now. Kevil, Ky., S. W., July 8. J. G. VANCE.

The clover flow in this immediate section was cut short, being confined to about two weeks; but bees got about 100 lbs. to the colony of extracted honey.

J. H. HAUGHEY.

Berrien Springs, Mich., S. W., July 15.

We had the finest bloom of all kinds of clover in many years, but the hottest and dryest June I ever saw. The last of June all clovers were killed; honey-crop is very light, only 30 lbs. of comb to colony; extracted, 75 lbs. Prospect is fair now for a fall flow to winter. This is the shortest report for many years for Ionia Co. Bees are in fine condition.

Ionia, Mich., C., July 30. A. H. GUERNSEY.

The honey crop from clover is the best it has been in several years. L. D. ALLEN.
Scottville, Mich., N. W., July 21.

Our bees are doing fairly well this year.

ELMER HUTCHINSON.

Pioneer, Mich., N. W., July 21.

This is one of the best seasons I have seen in 32 years in this county for beekeeping, and we are getting a fine crop of extracted honey—from clover, raspberry, and milkweed mainly. W. HARMER.

Pierpont, Mich., N. W., July 24.

We are having a good flow of clover honey at this point. A. ROBERSON.

Lake City, Minn., S. E., July 21.

We are having damp weather, and the pastures continue to be white with clover. When the weather is fit they work at a great rate; but the weather is such that they can not leave the hive, at least half of the time. JAMES F. BRADY, JR.

Medford, Minn., S. E., July 18.

The white flow is over. Clover yielded finely for a few days, then the drouth burned it up. Basswood yielded but little, owing to cool nights; not more than half a crop of white honey in this locality.

N. P. ANDERSON.

Eden Prairie, Minn., S. E., July 20.

We are having a good honey-flow from white clover, but swarming has been the worst I ever saw. Colonies have already stored about 80 lbs. of extracted average, and we have plenty of rain, so it may reach the hundred mark or better.

JAMES F. BRADY, JR.

Medford, Minn., S. C., July 7.

The honey-flow stopped the 29th of June. Dry weather stopped it. Plenty of rain since June 30, but the flow did not come back.

IRVING E. LONG.

Marceline, Mo., N. C., July 12.

The white-clover honey-flow is still good. We need a little rain at present. The clover honey is the best crop harvested for years in this locality. Many thousands of pounds are going to be lost on account of a scarcity of bees. G. L. LAUER.

Queen City, Mo., N. C., July 8.

Four weeks of good honey weather has given us a large yield, and it continues. J. L. GANDY.

Humboldt, Neb., S. E., July 9.

I have increased my apiary of 190 colonies, spring count, to 250, and have 400 supers about finished, of the finest fancy honey (white and sweet clover) I ever wish to see, and the flow is just at its best at this date. I expect to harvest 20,000 sections of fancy and No. 1 honey this season.

BELL E. BERRYMAN.

Central City, Neb., C., July 22.

Some of my best stands have made three hivefuls of extracted honey up to date, and the season is not here for two months. EDW. SCROGGIN.

Greenfield, N. M., N. E., July 29.

Bees seem to be making honey. A. E. LASALLE.
Georgetown, N. Y., C., July 29.

Pretty good honey crop so far.

OREL L. HERSHISER.

Kenmore, N. Y., W., July 8.

We had a good honey-flow from clover—the best I have known for years. J. W. LEWIS.
Lockport, N. Y., N. W., July 15.

The clover crop in this locality was the best in four or five years. MYRON C. SILSBEE.

Cohocton, N. Y., S. W., July 23.

Dry weather still holds here, and has cut down the honey crop very greatly. I have not begun to take the crop yet, so can't speak with definiteness.

JAMES MCNEILL.

Hudson, N. Y., E. C., July 18.

Bees are not doing well in storing honey thus far this season in eastern New York. Buckwheat will begin to bloom about Aug. 1. The weather is hot and exceedingly dry, and crops are suffering for it. Middleburgh, N. Y., E., July 22. N. D. WEST.

The white-clover honey harvest came to an end with a snap in this vicinity last Saturday night, the 5th. Drouth was the cause. Rains in New York were all near the lakes. Basswood showed unopened buds on July 4; leaves were eaten by beetles or worms. White-clover honey is perfection in quality, but quite a lot of unfinished sections.

C. W. WILSON.

Canastota, N. Y., C., July 7.

Bees have been gathering honey for the last two or three weeks quite lively—first from white clover, and lately from sweet clover. At the beginning of the white-clover bloom, of which we had an abundance, things looked very dark. On account of the cold nights, quite a number with frost, during the first half of the bloom clover did not seem to secrete any honey—at least, bees did not store any; but since the appearance of warmer weather the prospect has become quite promising. Some of my better colonies have already made 150 lbs. or more of extracted honey.

G. C. GREINER.

La Salle, N. Y., N. W., July 17.

The honey crop here will be the greatest in years. Marion, Ohio, C., July 30. C. G. FRANCIS.

A great honey-flow is on here. L. A. TRUXELL.
Peninsula, Ohio, N. E., June 30.

White-clover bloom is in abundance; yield of honey fair; all hives strong, with bees' prospects good. Bayard, O., E. C., June 21. T. C. WILLIS.

Bees are in fine shape, and making lots of honey. I have 28 stands. JOHN WELBAUM.
Arcanum, Ohio, S. W., June 28.

The honey season here is about over, and I have the best crop I ever had. T. BARNES.
South Zanesville, Ohio, S. E., July 28.

There have been oceans of white and alsike clovers, but the floral matter contained scarcely any nectar. Too dry. Honey crop very short. Bloomdale, O., N. W., July 14. M. N. SIMON.

Old beekeepers tell me there never was such a honey-flow as this year. The fields are white with white clover. H. J. HAUDENSCHILD.
Loudonville, Ohio, C., June 23.

The honey-flow is about over with the exception of sweet clover, which will soon be. Our crop was fair. CLYDE CORDREY.
Bellevue, Ohio, S. W., July 7.

The season has been the best in 25 years in Clinton Co., Ohio, since I have had bees. Lots of clover and lots of white honey. BLANCHESTER, O., S. W., July 14. D. G. LIDDIL.

We are having a good honey-flow out here this year, although the weather is a little dry. HENRY V. BROWN.
Antwine, Okla., N. W., July 11.

At present the prospects look bright for a full crop of white-clover honey. The bees are working well. B. E. ABBOTT.
Lucan, Ont., S. W., July 9.

Honey-flow is good. All good colonies made two Danzenbaker supers, and have started on the third. Jamestown, Pa., S. W., July 17. D. B. HILL.

The honey crop has been a good one with me—very nice and white honey. WM. REIBER.
Spring Mills, Pa., C., July 18.

The honey crop is not as good this year, as it was dry in the first part of the season. H. C. BOYD.
North Mountain, Pa., N. W., July 12.

The honey crop through this section of the country is poor. ENOS O. STAUFFER.
Ephrata, Pa., S. E., July 1.

The clover-honey flow is now nearing the end, and has been one of the best for many years. Clover has been in bloom since May 26. The milkweed is now coming in bloom, and we expect a heavy crop. GILBERT S. YOUNG.

Munson Sta., Pa., C., July 11.

The fine rains and hot weather have caused the greatest rebloom of white clover I have ever seen, and the bees are working again equal to their best pace in June. I shall have to extract and clear comb-supers to give room to store the new crop.

Wilksburg, Pa., W., July 28. W. D. KEYES.

We are not living in a land of milk and honey this year. If a line were drawn across Eastern Pennsylvania and New Jersey a little north of Philadelphia, you would find no white honey north of this line worth mentioning. South Jersey has been enjoying a flood of sweets. I have had no swarming; and a season that is so poor as not to provoke a few swarms is no good for honey. F. G. FOX.
Pipersville, Bucks Co., Pa., S. E., July 10.

Honey harvest was over the last of June. Product in comb is very white, flavor delicious. First clover was early, May 15; but weather was too cold for nectar and for storing until after June 1, making the season very short. Returns are fair in quantity, fine in quality. Swarms are limited in this locality—i. e., about two natural swarms to twelve colonies. All supers off July 1, and dark honey is now going into brood-nests. Colonies have full stores, and are populous. T. CHALMERS POTTER.

Doylestown, Pa., E., July 19.

Honey, half a crop. D. E. NUCKOLS.
Chatham, Va., S. C., July 15.

I have been in the bee business over 60 years, and this is the worst season I have ever seen. My bees have consumed some 55 lbs. of feed since I set them from the cellar. I used up 3000 lbs. of sugar. C. M. LINCOLN.

West Rupert, Vt., S. W., July 16.

The honey crop will be a complete failure here this year—not a pound in sight. Drouth has ruined the clover. Basswood is to come yet, but we don't look for any honey. Worst year in thirty.

I. N. HOWARD.
Fair Haven, Vt., W., July 8.

Honey flood—increased from 42, spring count, to 84, and will receive about 8000 lbs. of extracted honey and 200 lbs. comb. HERM. J. ROEBEL.
Menomonee Falls, Wis., S. E., July 24.

We have a great growth of white clover for this time of year (July 23). I never saw the like. The bees are working quite freely on clover. I have a good crop of honey, mostly white clover. Basswood did not do much. A. D. SHEPARD.
River Falls, Wis., N. W.

Honey is rolling in at a great rate. The prospects are good. ELIAS JOHNSON.
Lovell, Wyo., N. W., June 25.

Stray Straws

Dr. C. C. MILLER, Marengo, Ill.

YESTERDAY the bees were fearfully cross, although storing heavily. The smoker was loaded with pure greasy waste, which we've never used much. Was it the fuel that made them so cross? Well, the smoker was emptied, and filled with wood. Bees just as cross as before, or at least kept on cross, and I don't know why. But I wonder if some verdicts about fuel are not hastily made, just as we would have decided against greasy waste if we had not compared it with wood. [See last Straw.—Ed.]

IN AMERICA no one seems to think of a hive-entrance anywhere except at the bottom, summer or winter. In Germany there are many hives with entrances near the top. In *Leipz. Bztg.*, 41, G. Leis tells of an old beekeeper who for 20 winters had closed air-tight the bottom entrance, allowing no chance for air to enter except through a bung-hole on top, and that was covered over so no light could enter. It would seem there was no chance for a winter flight, yet his bees always came out in good condition in spring. Luneburg beekeepers have for centuries used the upper entrance, and it is claimed that this secures greater freedom from mold and diarrhea in winter. [In going out with our inspector this summer we found entrances all the way from the bottom to the top of the hive, and some old boxes that had openings in half a dozen places. Bees were using all their entrances.—Ed.]

IN ENGLAND and in Europe drugs are more in favor for the cure of foul brood than here. Seldom is there a time when some drug is not lauded in German journals as a "sure cure," only to be replaced a little later by some new candidate. Now comes so high an authority as Dr. Maassen, who says, *Leipz. Bztg.*, 36, that no time should be wasted in such experimenting, as the disease can never be cured through chemical means. [Dr. Maassen is authority in Europe. We do not know why any one should fuss with drugs for the cure of foul brood. Some 25 years ago we tried out thoroughly the various drug treatments for the cure of American foul brood, but they all failed. Practically all the reports from reliable sources in this country show the same result. There have been cases where some honest investigators *supposed* they were dealing with the real foul brood, when the fact was it was something else. When they tried out the drug treatment it apparently brought about a cure.—Ed.]

WESLEY FOSTER says, p. 440, "When a queenless colony is found . . . set it on top of another hive and be done with it." A Kentucky correspondent asks whether his object in doing this is merely to unite or to give a queen, and asks what I would do with a queenless colony. Undoubtedly he means merely to unite without the trouble of giving a queen. What I would do with a queenless colony would depend. Early in the season, or with a weakling any time, like Mr. Foster, I would unite; although very early a strong queenless colony might be united with two or more others. Later in the season a strong colony would be given a laying queen from a nucleus kept to rear queens. If no such queen were on hand, I might wait for it, or I might give a virgin or a ripe queen-cell to the queenless colony. Emphatically I wouldn't try rear a queen very early, and just as emphatically I wouldn't break up a full colony because queenless in harvest-time.

A BURNING question is that one getting to be about burning cotton waste with and without grease. We've burnt lots and lots of cotton rags without ever noting bad effects. We never had much experience with greasy waste, but are now using some very rich in grease. I think it's the most lasting fuel we ever used—lasting, I should say, five times as long as the dry cotton. The smoke seems milder to breathe, and doesn't smart the eyes like wood smoke; but it seems to affect the bees more. With a smoker filled with it going its best, blown on top of a super, it makes the bees fly off in a cloud, instead of running down in the super. I think I never knew any other smoke to do that. [We believe we were the first to suggest and introduce greasy waste as a smoker fuel. Its trial in the first place was accidental. As we had quantities and quantities of it, and it continued to give excellent satisfaction, we kept on using it. In our judgment it is far ahead of any other fuel that was ever used. It furnishes a milder smoke, and yet subduing enough to do the work. It is lasting, and, most important of all, it does not gum up the smoker with creosote as do other fuels. It can usually be had for the asking at any machine-shop. But do not leave greasy waste stored around in a building near combustible material. It is subject to spontaneous combustion, and should, therefore, be stored in an empty hive or in a box or a small building remote from other buildings.—Ed.]

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

When I read of the bumper crop of honey now being secured in the East, I am led to think that, for the benefit of the market, it is perhaps just as well that our off year came when it did. Now that we are largely out of the market, we hope that our eastern neighbors will make a big hit, after which we shall be pleased to have our inning.

* * *

Wesley Foster, greasewood in *this* part of the world means almost any kind of shrub that is large enough to make a stick of wood (stove size) to sell; and the term, as nearly as I am able to learn, is derived from the fact that the Mexicans, commonly called "greasers," go out into the hills and dig up and make into wood the various growths of this kind.

* * *

A member of my family sent east for a collection of flower seeds, among which was to be a flowering sage. My wife was especially interested in this new sage, for she had hopes that it might be of the commercial seasoning variety. It has grown nicely since early spring, and I have discovered it to be nothing more nor less than the California white sage. If kept over until another season it might produce some bloom; but as a flowering plant for which it was sold I do not consider it very satisfactory.

* * *

I can not too strongly commend J. L. Byer for his stand on "an abundance of old stores on the hive during winter." This, in my opinion, is the greatest asset of successful wintering of a colony, whether it be in California, Canada, Maine, or Florida. The fact of the matter is the bees of a colony must consume a quantity of stores if they raise a quantity of young bees. Without plenty of old honey and a large amount of young brood a few days of bad weather will often cause the best colonies in the yard to become worthless.

* * *

Wesley Foster and J. L. Byer both condemn the book-record system for the beekeeper who runs hundreds of colonies. I have not used that system for a number of years, but am going to give it another trial, for I believe there is more time wasted, many times over, in opening hives in a large apiary to ascertain their condition from time to time than would be required to keep an efficient record. It makes little difference what the mission of inspection is. If

there is a record to refer to, one can many times check up the record-book in a few minutes and know just what colonies need to be examined. The value of a record for keeping track of the age and energy of queens is in itself a great help, and may often help to get rid of the old and worn-out ones before they become a detriment to the colony.

* * *

GLEANINGS of July 15, p. 480, quotes from the *Western Honeybee* of July 1 a criticism on my crop report in GLEANINGS, p. 327, May 15. This may be a just criticism in a way; but I think if Mr. A. F. Wagner, who makes it, would figure the part Imperial County would hold in the amount produced, and the demand for our wild-flora honey in preference to any other in years of heavy production, he would find that the amount from his county would not only be a small amount compared to the production of the rest of the southern part of the State, but that the demand would be no greater for it than for any other alfalfa-producing locality. When the trade, both home and abroad, is trying to find out about the California honey crop, alfalfa is not given more than a passing thought—only honey from those flowers that are to be found in our semi-tropical climate being considered.

* * *

Another disastrous brush fire has just been extinguished in Riverside County, and that, too, in one of the best producing locations. Some very heavy yields have been secured in years past from the country just swept by fire, much of it being especially fine for late buckwheat, though some fine sage localities were also devastated. The fire is said to have burned over about 40 square miles. Unlike most of these fires, this one started by lightning, and the cloud from which it came did not rain sufficient to extinguish the flames. I submit the following extract from the Redlands *Daily Facts*:

Among the losses sustained so far are A. Hasenauer, sixty stands of bees; Thomas Rawson, several head of cattle, and several hundred acres of grazing land, and two large apiaries; this same loss was sustained by others. Thousands of dollars of excellent grazing land in sage sections are ruined. Several other lost bees, many apiaries going up in smoke. It is estimated that 20,000 stands have been burned, it being impossible to remove them. Owing to the fact that country roads are not wide enough for fire-breaks, unlike government-built roads they serve no purpose, and are so narrow that men can not fight oncoming fire, and it jumps the roads easily.

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

The Toronto exhibition, known generally as the "National," has a world-wide fame for the excellence of its exhibits in general, honey not excepted. This year a radical change has been made in the honey department, and the exhibit will be looked for with interest. Instead of individual prizes being given, the National directorate have given a lump sum of money to the Ontario Beekeepers' Association, and asked them to put up a large and attractive exhibit. This is being done in the way of county exhibits being sent in, and the Association is to see that all is staged in an attractive way.

* * *

The circumstances mentioned on page 513, Aug. 1, relative to drones congregating in large numbers in certain places seems to be quite common. For many years I have noticed that the drones from our home apiary, as well as those from a neighbor's, about half a mile away, swarm by the thousands over a field about a quarter of a mile away from each of these two apiaries. Any nice sunny afternoon in July and August there is a great roar of flying drones in this place, and I can see no reason why this particular location is chosen; but the drones seemingly like the spot better than any other in the vicinity.

* * *

Since writing my last notes for this department, conditions have changed but little in the clover situation for Ontario. As forecasted then, the crop, generally speaking, is very light in eastern counties; light to fair in northern counties, and good to *very* good in central and southwestern counties. The markets are good, and in our own case all honey is sold at this date (July 11) except some pails that are held for winter sales. Quite a determined effort has been made by the wholesale trade in some quarters to bear prices, but in a general way the prices recommended by the crop committee are being obtained. A few beekeepers who had big crops, and feared low prices later on, sold at a figure below the committee's recommendation; but I suspect they see the mistake now. The Western Provinces of Canada take large quantities of honey; and as crops are good there this year, the demand is likely to be good and continue for honey all winter.

One feature of the honey market this year is that every small order from a family is likely to bring a repeat order in a short time. The reason for this is that the clover honey this year is the finest in quality that I have ever seen, and that is

going some, as Ontario generally produces some pretty good stuff in the honey line.

* * *

I heard a farmer once say that farming is a gamble on the weather. No later than a few weeks ago, one of the last men we would suspect of gambling made the same statement to me in regard to beekeeping. I refer to our mutual friend Mr. Pettit; and I know, Mr. Editor, it will shock you to learn that our friend is engaging in and advising others to go into a business that has a tendency to develop the gambling instinct that seems to be inherent in human nature in general. I will leave you to deal with him in the matter. I should just like to say that there is a certain amount of luck or chance in beekeeping that has all other rural occupations "beaten to a frazzle," to use a term quite familiar to you chaps "over the line." For instance, up at the Lovering yard, which is 100 miles north of our home, when there about May 24 I certainly thought by conditions in general that the bees would leave the others away behind that are in York Co. around our home, at least ten acres of clover up north to every acre around our home yards, to say nothing of other honey sources of which we have nothing here. The season is now over, and up north we have about 35 pounds per colony, while here the five yards have averaged four times that much. Shortly after I left the north yard this spring, late spring frosts damaged the clover badly, and then the prolonged drouth finished up the work. Here at home the frosts did little damage; and while we were a bit short of rain most of the time, yet some nice showers kept the clover quite fresh for a while, and the yield of nectar was very good indeed. In writing the July Notes I stated that buckwheat prospects were fine; but since that item was written we have had practically no rain, and now it looks as though we shall do well if the bees get enough buckwheat to pay the feeding-bill. It is now Aug. 11; and unless rain comes soon, certainly we can not get much buckwheat honey, as the plants are stunted and the ground all parched and cracked open in many places. These are commonplace occurrences, of course, to the beekeepers who have been in the business for years; but perhaps a recital of some of these things that are *likely* to happen may be the means of helping some beginners to realize that, after all, beekeeping has trials and disappointments to put up with as well as have other pursuits.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

WESTERN EXTRACTED AND COMB HONEY.

The comb-honey producer has to be a better beekeeper than the extracted-honey man. If you want to take it easy, don't produce comb honey. But if you would prefer to worry over marketing more than over the preparation of supplies, why produce extracted honey? The western extracted-honey producers are up against the marketing problem far more than the western comb-honey men. When we can get 11 to 12 cts. per section for comb honey, and only 6 to 7 cts. per pound for extracted honey, more money is to be made in comb honey. I may be disputed on this, but I believe I am right in the majority of cases.

* * *

REMODELING HIVES.

The average western beekeeper has more empty hives than he wishes; and the question of filling them is an important one; but first it is well to go over them carefully and renail the corners so that the tin rabbets will be in solid. True up the top and bottom with a plane if necessary, so that they will not allow an entrance for bees any place but at the proper entrance. There is one gratifying thing about the best hives now sold—they are made deep enough so that you can plane off a little on the bottom to square up in case the hive is off a little. Hives now made for western trade are made deeper over the frames and below them to allow for shrinkage in this climate. In fixing up the bottom-boards do not forget to paint them on both sides. Put a 2 x 2 cleat at each end for a hive-stand if you do not use them. They strengthen the bottom wonderfully. My uncle, Oliver Foster, dipped all his bottoms, hive-covers, and bodies in boiling linseed oil. Then two coats of paint were applied. If you want to see hives that hold their shape, and last in this western country, you ought to see some of them.

In remodeling cases don't fool with any thing but a metal-roofed cover. The wood covers are absolutely "no good" for the western comb-honey man. With the extracted-honey man it is different. But I have yet to see the first all-wood cover that would not leak, and leak badly, in less than ten years' use beneath our western sun.

* * *

COST OF SOME BEEKEEPING OPERATIONS.

No. 1 sections cost about \$4.50 per thousand. Extra-thin foundation costs 55 cts. a pound. Scraping and cleaning supers and separators costs five cents each. A

handy boy or girl can make good wages folding and "startering" sections at \$1.50 a thousand. The expense for supplies as run by the average western beekeeper is about as follows. The expense is based on supplies for one hundred colonies. Three supers to the hive will be needed.

7200 sections at \$4.50, \$32.40; 50 lbs. extra-thin foundation, at 55 cts., \$27.50; scraping and cleaning 500 supers, at 5 cts., \$15.00; folding and startering 7200 sections, at \$1.50, \$10.80. Total, \$85.70.

By using No. 2 sections the cost may be reduced to \$27.00 for sections; and if a one-inch top starter is used instead of a three-inch the expense for foundation will be cut from \$27.50 to \$10.00. This, however, is doubtful economy. If one scrapes and cleans the supers and separators himself, not counting the labor, this item will be eliminated from the estimate, as will the expense of folding and startering the sections. But the busy beeman can not afford to do this work himself unless during the winter months, and even then a man's time should not be taken up with this class of work. By this doubtful economy in sections and foundations, and doing all the work oneself, the expense for preparing the supers for one hundred colonies will be \$37.00 instead of \$85.70.

For the normal increase, at least 25 extra hives will be needed, costing \$1.60 each, or \$40; and for these hives 30 lbs. of medium brood foundation will be necessary. At 45 cts. a pound this will be \$13.50, making an additional expense of \$53.50 for the increase.

A man will be able to nail up about ten hives a day. It will require four days to nail up and paint 25 hives. At \$2.50 a day we have \$10 for this item.

The cost of new equipment which goes into permanent fixtures should not be charged in the season's cost unless it is subtracted from the value of the increase that is made. Ten dollars should be allowed for miscellaneous supplies. Here, then, we have an expense of about \$100 if labor is not counted, and \$160 if labor is counted, for preparing 100 colonies for the honey-flow.

Of course, no feed for bees is included or rent for location or rent of shop, or feed for horse or care of auto. With the strictest economy the expense for supplies for comb honey can not be brought under \$1.00 per colony, and it can easily be made to run up to \$2.00.

Conversations with Doolittle

At Borodino, New York.

WHY SO MANY DRONES?

"If I am correct, you advise that only a little drone comb be allowed each colony in the apiary, except to those which have queens especially selected from which to rear improved stock for mating purposes. Now, there are a few of us who think that there is some unknown or unseen advantage in having a lot of drones in a hive, just as we find them in box hives, or where the bee-keeper pays no attention to this matter of comb-building. From a close watch I feel assured that colonies having their own way in this matter are fully as prosperous, if not more so, than those from which I have carefully excluded all but about an inch of drone comb. This being the case, are not you folks who are advising only an inch or two of drone comb making a mistake?"

It may be well to look into this matter a little, as I do not wish to advocate a false doctrine. In a state of nature, colonies do not exist in very great numbers in any one place; and when colonies are from one to several miles apart, either in hives or in trees, it becomes necessary that a great number of drones emerge in each colony in order that a sufficient number of such be found within easy reach to render the queen's bridal flight successful. Otherwise the queen is liable to be caught by birds, or overtaken by some mishap through long-continued roaming, so that she may never return. Nature is very lavish, and has provided a great number of drones in a hive, or any home of a colony of bees, at swarming time, and this is but another evidence of the correctness of the theory of natural selection. In other words, there must be enough drones reared in each colony to make it an almost absolute certainty that the queen of this colony (or of any other for that matter, for several miles) will be sure to find one in a few minutes, or the half-hour at most that she spends in the air. Upon her life and successful mating the existence of the colony depends, as there are often no other means left for the continuance of her colony.

But in case of 10, 25, 50, or 100 colonies being congregated together, all of this, through domestication, is changed, and thus the drones reared in the two or three colonies from our selected drone mothers will serve the same purpose as if those two or three hives were the only ones within the range of flight of the bees. From this it is plain that it is useless to rear such a great number of drones in every hive.

That the drone-rearing colonies are any

more prosperous than those being restricted to an inch or two of drone comb is something I have never been able to discover; but, on the contrary, I have many times noted that this multitude of drones consume so much of the honey gathered by the minimum number of workers, necessitated through a minimum amount of cells of the worker size, that very little surplus could be obtained from such colonies, to say nothing about having to supply the needed amount of stores for winter. What advantage can there be in the rearing of a large number of drones? They do not work; they are never seen out in the fields on the bloom which secretes nectar; they eat the honey of the hive, and their rearing decreases the number of workers reared. Are these facts to be laid aside and overlooked? In a square inch of comb, only about 36 drones can be reared, while the same space will give about 55 workers, both sides of the comb being reckoned as a matter of course. Taken in round numbers, a square foot of comb will give 8000 workers, or about 5000 drones. Then it takes 24 days of time in which to perfect these drones, while the workers will emerge in 21 days from the laying of the eggs by the queen. And it will take about the same amount of food for the rearing of each, since both occupy the same space. Is not this reasonable? And when all the 8000 have emerged from this foot of comb we have a fair-sized swarm of honey-gatherers added to the other forces of the hive which will almost if not quite turn failure into a successful surplus. Hence these drones that are reared at great expense are in the way of the household duties of the home; and they decrease the profits by the loads they carry out on every flight.

It is claimed that drones keep the brood warm; but is it not plain that, when there were fewer bees in the hive than when they arrived, *they* had to be first kept warm? And these drones emerge only as warm weather is coming on, at a season when there is little danger of any brood getting chilled. Then on all cold days, and as night comes, all the forces of the hive are gathered together there, so this warmth from the drones is hardly a sufficient plea for their existence.

All things considered, it seems clear that it pays to exclude all except an inch or two of drone comb from all but one or two colonies in any apiary having ten or more colonies in it, allowing much drone comb only to our best drone-breeders.

General Correspondence

A PLEA FOR EXPERIMENTAL WORK IN BEE IMPROVEMENT

BY W. WHITE

The part played by man in the past in modifying the honeybee to his own uses appears to have been insignificant, principally for the obvious reason that, until recent times, the greater portion of the life-history of the insect has been a closed book to him. That some modification has been effected is scarcely to be doubted; and, in view of the immense strides that have been made in this region of applied science during the past decade, it is not too much to hope that the near future contains the fulfilment of the beekeeper's desire for a "better bee."

A thorough and searching investigation of racial characters is a necessary prerequisite to any substantial advance in this direction—a fact which, in the discussion of the subject of bee improvement, has hitherto been almost entirely ignored. Scientific inquiry itself has been confined almost wholly to the study of anatomy and disease, and but little work has been undertaken to ascertain the manner of inheritance of the characters of the bee.

As is well known Mendel experimented with bees many years ago, but, unfortunately, the records of these experiments have not been discovered. The work has been recently taken up again by several biologists in Europe, and doubtless the results of their investigations will contain much that will be of great interest and, possibly, of supreme importance to the beekeeping fraternity. The work of Mr. Sladen is fairly well known, especially in Britain and in Europe generally. He has conclusively demonstrated that Mendelian principles obtain in the case of the honeybee. The recently published results of his observations may be summed up as follows: In the cross between a golden queen and a black drone, segregation of the factor for the golden color from that for black occurs in the second generation. The workers and queens of the first generation of the cross consist entirely of an intermediate form, while the female offspring of this generation of intermediates consists always of goldens, intermediates, and blacks, the intermediates being usually greatly in excess of both the goldens and blacks. The evidence furnished by Mr. Sladen's experiment shows that, as regards color characters, the bee exhibits the same mode of inheritance as other animal organisms.

It is an unfortunate possibility, however, that the investigation of bee characters may proceed along lines that will prove of but little interest or of immediate benefit to the beekeeper. The experimentalist in this department of science usually selects for his purpose some easily recognizable physiological character; but in the case of the bee such characters can be of but little economic value. The utility characters of the bee are such that they are not likely to commend themselves to the scientist as furnishing material for research work in heredity, and the question will doubtless arise in the minds of many beekeepers as to whether some effort should not be made to induce government authorities to institute special experiment stations for work along the line I am suggesting.

What constitutes the "better bee" has been discussed at great length during the past few years, and some extravagant claims have been put forward as to success achieved in producing wonderful strains of bees. If Mendelism teaches us one thing more than another it is that such claims, based as they are upon work of a merely empirical nature, are extravagant. Breeders must be reasonable in their demands. They must not expect to create. They may only hope to discover, at the most, what already exists, locked up though it may be, in nature's wonderful storehouse of gifts. The breeder is an explorer; but the possibilities that are open to him are boundless. He must bring to the work all the patience and skill he is possessed of; for the task of unraveling and isolating factors which make for "improvement" is often most intricate and difficult. The element of elusoriness that enters into the problem as a result of the peculiar nature of the bee adds greatly to the difficulty of the work. Yet notwithstanding all that may be said in regard to the complications resulting from parthenogenesis and the difficulty in controlling matings, there is not the slightest doubt that improvement of the bee is feasible.

The necessary preliminary analysis of utility character can not be made under the conditions that ordinarily obtain in the practice of beekeeping. To ascertain and to distinguish between clear-cut utility characters requires an absolute uniformity of conditions that is never found in the commercial apiary; for the bee responds to its environment with an exceedingly high degree of sensitiveness. Every-day experience proves, beyond a doubt, that great differences exist in utility characters. With-

in the limits of large yards the extremes of variation are often to be found. But the exact range of variation is difficult to measure, and, in the ordinary way, it is almost impossible to gauge the extent to which variations may be due to environmental conditions on the one hand or to factors inherent in the bees themselves on the other. The large yield may occur in a very mediocre colony, and be due to a fortuitous combination of favorable circumstances, while at the same time, by reason of adverse circumstances, a colony of a much better type may fail to do itself full justice, and will fall short in the harvest. If, then, a means can be devised whereby uniformity of conditions may be insured, a large part of the difficulty in obtaining a correct conception of the nature of the utility characters of the bee will be overcome, and the breeder will be well on the way to discovering the potentialities of the subject.

To illustrate the value of analytical methods of investigation, I will refer briefly to the results of Dr. Raymond Pearl's studies of fecundity in poultry, carried on at the Maine Agricultural Experiment Station. Nearly every poultryman who has endeavored to improve the laying qualities of his flock knows how difficult it is to fix a strain of fowls perpetuating the high-laying powers of any particular hen. A fowl showing an abnormal egg-record can not, in fact, be depended upon for giving a progeny that will show a capacity for egg-laying above the average. The ordinary laws of heredity do not appear at first sight to apply in this respect. The following summary of Dr. Pearl's experiments will furnish a solution of the problem, and at the same time serve to indicate how similar questions may be attacked in the case of the bee. The facts established are:

1. Fecundity is inherited strictly in accordance with Mendelian principles.

2. Observed individual variations in fecundity depend upon *two* separately inherited factors. The first of these two factors determines a winter production of eggs numbering from 1 to 30 per bird. The presence of the second factor, in addition to the first, increases the winter production above 30 per bird.

3. High fecundity is manifested only when *both* of these factors are present together in the same individual.

4. Either of these factors, when present alone, causes about the same degree of low fecundity to be manifested.

5. One of these factors, viz., the second, is *sex-limited*, like the barred-pattern factor in the Barred Plymouth Rock.

6. There is a definite and clear-cut segre-

gation of high fecundity from low fecundity in accord with simple Mendelian principles.

Those acquainted with the interesting facts of "sex-limited" inheritance will readily understand from 5 how it is that simple selection of highly fecund females is not sufficient to insure a similar degree of fecundity in the progeny, and they will likewise appreciate the nature of the difficulty which has puzzled the poultry-breeder to so great an extent. Results such as these show conclusively that anomalous conditions, apparently defying the ordinary laws of nature, are often capable of simple explanation when subjected to careful analytical scrutiny.

Fecundity in the bee is a character of very great importance. Other things being equal, the highly fecund strain will produce a proportionately large amount of surplus. There are good reasons for believing that distinct and clear-cut degrees of fecundity may exist in bees as in poultry. Without doubt, there are strains which exhibit very striking divergences from the normal; and the mere elimination of the least fecund strains would result most probably in the raising of the standard to a very considerable extent.

Beekeepers often speculate, without hesitancy, as to the nature of the characters upon which proficiency in honey-gathering depends. In the absence of special investigation, however, the matter must remain largely one of mere speculation. Under the usual methods of beekeeping, subtle yet important differences of character may pass unnoticed, or their value be wrongly estimated. For this and other reasons, special preparations and methods of procedure are necessary for the experimental work of testing characters. I would suggest, as a first essential, that all the queens for the experiment should be of precisely the same age, and have been reared under conditions as nearly alike as possible. They should be introduced simultaneously, each to an equal weight of workers, and hived upon empty combs. In every possible way the greatest care ought to be exercised to prevent any risk of disturbing factors entering to lessen or destroy the accuracy of the results of the experiment. Thus it is possible to obtain an accurate estimate of the manner and extent of the egg-laying of the various queens under observation. When sufficient time has elapsed for the whole of the original workers (which should preferably be of a different race from the queen) to have disappeared, and the hives are populated by the offspring of the experimental queens, the various observable characters of the

workers may be placed under surveillance. For the purpose it will be better to shake the colonies at this point, and to rehive them upon starters of foundation. The capabilities of the colonies in the matter of comb-building and honey-gathering may thus be gauged, the means of practicing selection are provided, and the work of eliminating the "unfit" may be proceeded with if this latter be the object of the breeder.

The scope of all experimental work of this kind must largely be determined by the originality and aim of the investigator. Whether his purpose be to establish a new race of bees, in which case he will probably work with at least two of the ordinary races, or merely to isolate the best strains in a given race, his real difficulties commence with his work of breeding. For this, mating-stations appear to be absolutely necessary. This subject of mating-stations has received considerable attention of late years, and there appear to be no obstacles in the way of finding suitable localities for them. The one essential condition is that there be no honeybees in the neighborhood other than those to be used for the special purpose of mating.

It should not be forgotten that similarity of appearance is no sure guide to inherent qualities. I heard it suggested at a recent convention that yellowness in the bee indicates ability to resist European foul brood; that the yellower the bee the more immune is it to the disease, and *vice versa*; that the darker the bee, the smaller the degree of resistance possessed by it. The evidence upon which such a statement is based is of the flimsiest kind. That the Italian race has proved itself better able to resist European foul brood than the black bee of this continent may, perhaps, be granted. It is not at all difficult, however, to adduce evidence showing that the black bee of Britain and the neighboring regions of Europe possesses the same degree of immunity as the Italian. Two individuals, undistinguishable in appearance, may show in their respective progenies characters greatly differing from each other. The purity, or otherwise, of a queen is not decided merely by color, but by the nature of the factors existing in the reproductive cells which give rise to the various distinguishing characters of the race or strain.

In his efforts to produce a race which shall combine the greatest number of desirable characters the bee-breeder of to-morrow may be under the necessity of making selection from several races. His task, as I have already pointed out, will be principally to determine what the factors are upon which the various desirable utility

characters of the bee depend. It often happens, as in the case of fecundity in poultry, that what appears to be a simple character proves, upon analysis, to result from the interaction of two or more distinct factors. As soon, however, as the analysis has been made, and the constitution of the characters expressed in terms of Mendelian factors, strains can be built up which will breed pure for those characters. The vague ideas of past generations must give way to a more exact knowledge and to clearer conceptions of what is involved in the processes of heredity. The guidance of science must be sought and followed. The problems arising from the parthenogenetic nature of the drone are largely mathematical, and not by any means incapable of solution, while the difficulty in controlling matings is minimized in its importance by the fact that the colony is the unit we are working with and not the individual insect, whether drone or queen. The object of the breeder will be to obtain colonies in which both the male and female progeny will transmit to the descendent colonies the desirable characters already analyzed, and his full efforts will be directed to this end. In spite of the abnormal conditions attached to bee-breeding operations, in spite of many difficulties of which even beekeepers are not cognizant, one has every reason to hope that, when the best and most reliable scientific methods are applied, the same success will attend the efforts of the bee-breeder as has accompanied those of workers in other fields of applied agricultural science.

Brantford, Ont.

How to Remove Bees from a Wall or Tree by Means of a Bee-escape

There is one little discovery I have made which I have never seen described, which has worked successfully. When bees have located in a house or tree in such a way that it is difficult or impossible to remove and save the swarm, I close all exits except one and place a wire cone over that one, leaving a small opening through which the bees can pass out but never return. The cone must be carefully tacked around its base. If a hive is conveniently placed containing a frame of brood, the bees will soon take possession, and will prove to be something of value instead of a detriment, as is often the case. I have succeeded, without the use of the brood-frame, in capturing the whole swarm, which was soon well provided with stores and brood.

Long Grove, Iowa.

GEO. W. CURTIS.

[The above is the principle of the Fisher plan described in The A B C and X Y Z of Bee Culture. A Porter bee-escape will be found rather better than a cone escape, and at the end of four or five weeks it should be removed to allow the bees, the majority of which are now in the hive, to rob the honey out of the combs in the wall or tree. When the escape is removed, sulphur smoke should be blown into the opening to kill the few bees remaining and the queen. A new queen must be provided for the colony or else young brood given from which the bees can rear a queen.—ED.]



Field day, Massachusetts Agricultural College, Amherst, Mass., June 11 and 12. See editorial in the July 1st issue, also in this issue.

HONESTY IN ADVERTISING QUEENS

What Constitutes a Golden?

BY PENN G. SNYDER

It is an acknowledged fact that, when goods are bought from description in some advertising medium, the article purchased should be as represented. It is very unjust, to say the least, to bargain for one thing and then receive something that possibly does not approach in looks or value the impression received from the advertisement.

There is absolutely no harm in saying in one's advertisement, "I have the finest queens ever produced." Such a statement is a general one, and can be accepted as such when summing up; but if the adver-

tisement reads, "My bees are all free from foul brood," or "My red-clover strain have tongues 23-100 of an inch in length," or "My goldens are full six-band," then a specific promise is made to the intending purchaser, and it would be well for all concerned if the advertising manager of the periodical should demand of the advertiser a proof of his assertion.

There is nothing in the world much cheaper than talk. When put in the form of an advertisement it becomes a little more expensive; but if it comes to making statements that are not true in the published advertisement, there is no limit to the claims that can be made. No doubt such advertisements do the honest advertiser a great injustice, as his statements are not so florid



The collection hall of the Massachusetts Agricultural College, holding the exhibit at the beekeepers' convention, June 11 and 12.



Partial view of the exhibits.

or highly colored, and so do not look as attractive to the buyer's eye.

Take, for example, the yellow coloring of golden bees. The advertiser can say, "I sell yellow bees, the brightest and best; strictly first-class goldens. I have the finest goldens in the United States;" or he can say, "My bees run five and six band golden. My breeding stock runs full six-band gold; my breeding queens and drones flying are entirely yellow." When the latter statements are made, there is a specific promise, or supposedly a guarantee that such is a fact; but is it?

This is where the advertising manager should require, before printing such advertisements, full proof.

When such has been forthcoming and

demonstrated to his entire satisfaction no one can be harmed—neither the advertising medium, the purchaser, nor the advertiser.

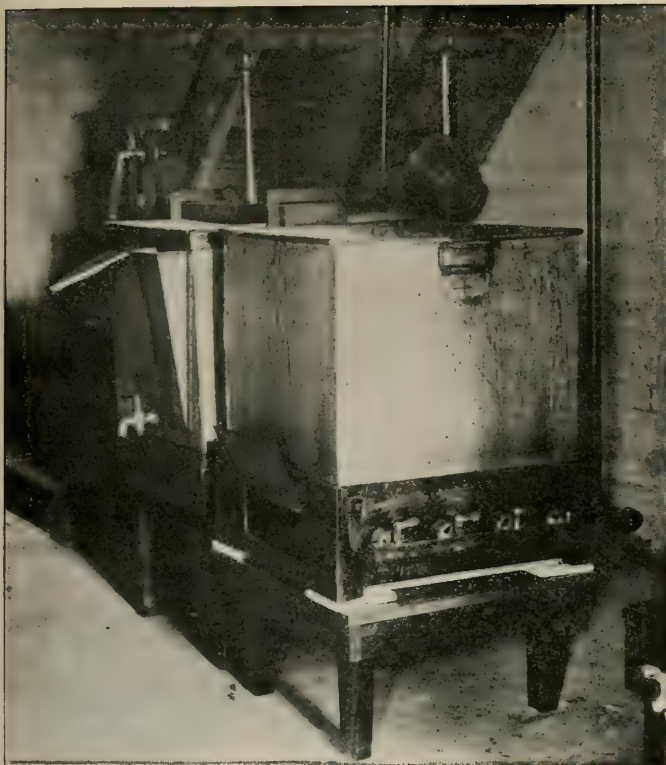
The first four of the above statements are general. They really do not guarantee any thing definite; but the latter statements are of an entirely different character.

It is not the intention of this article to give the impression that any advertiser intentionally makes a misstatement. He believes his advertisement to be true, or practically so.

There is considerable ignorance among the beekeepers, if not the producers of queens, as to what constitutes a golden bee, as well as to how many bands or segments the bee possesses. Any bee that is very bright in a colony, if only three-banded,



Display of wax, including several samples of foreign wax in the rear. The large cakes show samples of different renderings with the equipment at the college.



Melting-tank and Hershiser wax-press.

could be called a golden; but that is not the purchaser's idea of the variety. A queen which will not throw a large percentage of four-band yellow or better should not be classed as a golden.

The best in the color line which has so far been produced is a queen whose worker progeny is practically all yellow with the exception of the last segment or band which is the tip or end of the abdomen.

A frame of bright yellow bees looks very fine to their producer, and he really does not know, as a rule, how many worker bees run three, four, or five band yellow. It is necessary to confine a number, not less than 100 workers, in a small dark cage which has a bee-escape attached;

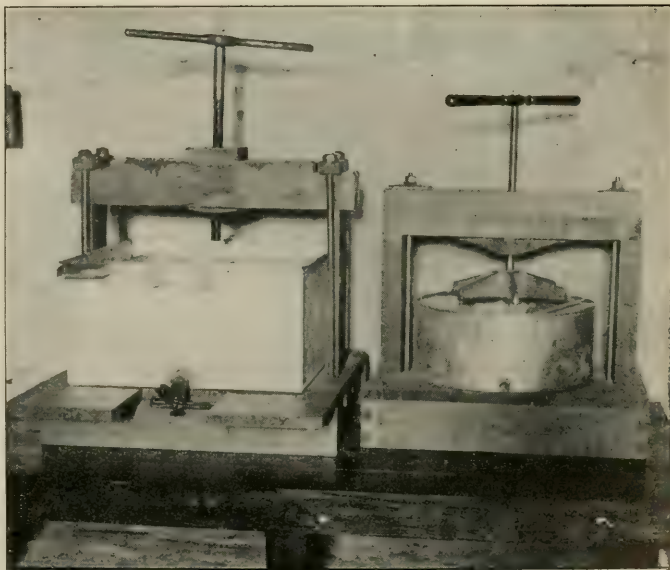
then as the bees run out they can be held one at a time, and examined as to what their coloring may be.

This is a safe way of testing the amount of color in your bees.

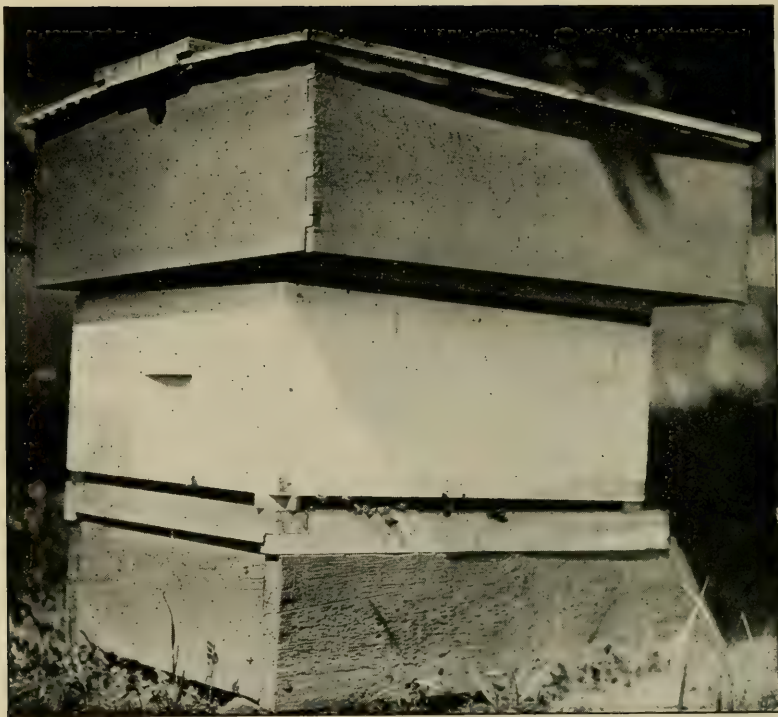
The average examination is, no doubt, made by examining a frame of bees and trying to count the bees having different numbers of yellow bands. Such a method is too uncertain, for the tendency would be to count the same bee repeatedly, and not know it; and the brighter the bee the more quickly it takes the eye, and the more likelihood of such bee being counted more than once.

A queen whose worker progeny runs 90 per cent five-band golden is a very scarce commodity, and it is doubtful if there are half a dozen such

queens in the United States. Such a queen, or one not throwing such a good percentage of yellow workers, will produce an all-gold-



Sibbald and Hatch presses.



One of Vernon Burt's hives for the production of comb honey. Mr. Burt says this scheme of putting his brood-bodies upon four blocks so as to provide entrances for all four sides goes a long way toward eliminating swarming. See editorial in this issue.

en virgin in practically every instance, providing they do not become chilled previous to hatching. Her drones will be yellow from tip to tip, with a very little dark shading on the last two or three segments. They will run pretty uniform in coloring, and there will be no black ones among them.

Such is the best type of golden from the standpoint of color that has so far been produced.

It is assumed you will all agree that there have been far too many advertisements giving an impression which the actual stock can not substantiate. Taken from the breeder's standpoint, he might sell a certain number of queens by making large statements; but will the purchaser be satisfied? and will he buy again? That is the question.

If the publication in which the advertisement is printed guarantees its advertising matter, it certainly is not going to uphold this standard by accepting and publishing such advertisements; and the reader who may read between the lines will place less reliance on the journal than he otherwise would.

The buyer who expects a straight five or six band yellow bee will be most horribly

disappointed, and he certainly should have some redress when straight yellow five or six band stock is advertised.

There is no doubt that if the advertising manager of the periodical and the advertisers would come to a little better understanding they would see it is to their advantage as well as their duty to their readers and prospective customers to give the customer as nearly what they pay for as is possible.

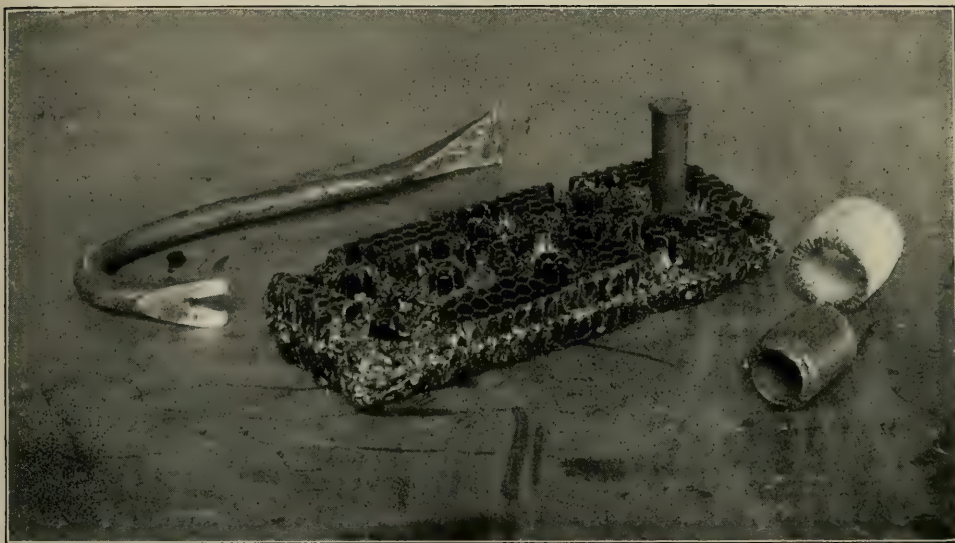
Swarthmore, Pa.

A NEW SCHEME FOR STARTING QUEEN-CELLS

BY WM. A. SEDDING

The engraving shows my hive-tool and a contrivance for starting queen-cells from the egg. All are of my own invention, and made from such material as I could find on the ranch. The hive-tool is very handy. I have been using one like it for the last five years. It fits nicely in the hollow of the hand, and also slips into the side pocket like a gun.

To start queen-cells from the egg or larva without transferring, I take the cartridge



Wm. A. Sedding's hive-tool and method of starting queen-cells without grafting larvæ. With the brass cartridge shell the selected cell is cut down to the midrib; then the short piece of pipe is slipped over the cartridge and twisted around, thus grinding away the surrounding cells.

shell, set it over a cell I want to save, and push it gently down to the midrib. I then take the hub (either the wooden or iron one), and place it over the shell; then by holding the shell with the fore finger of my left hand I give the hub a turning motion with my right hand, thus grinding the surrounding cells down to the foundation. Then I lift both the shell and hub from the comb, and the cell is ready for the bees to start on, just as shown in the picture.

Monterey, Cal.

DOES BEEKEEPING PAY?

BY HENRY REDDERT

When I am asked whether beekeeping pays, I answer, "Yes and no," for it depends entirely on the one engaged in the business. If he has an irritable temperament he had better leave bees alone. If he is cheerful at all times in adversity as well as in success, I advise him to go ahead, provided he equip himself with the necessary theoretical knowledge to be gained from text-books and bee-journals before starting in. If one wishes to become a practical mechanic he must serve an apprenticeship of from three to four years. The same holds good in beekeeping.

I once asked an old experienced beekeeper who also raised sheep, having a flock of about 400, which of the two paid the better; and his answer was, "The bees." From

350 colonies, he had harvested the previous year \$1500 worth of honey. In the forty years that he had kept bees in connection with a large farm the bees had always paid better in proportion. This man had become the "skilled mechanic." He began with bees on a small scale, and increased as he gained in knowledge by practice and reading.

Some time ago a lady asked the editor of a bee-journal if she and her daughters could make a living by keeping bees. She said they would like to go to the country in the good fresh air to escape the headaches she had when sewing in a densely populated city. Apparently she knew nothing about bees, nor had the slightest idea that some theoretical knowledge should precede the practical. Judging from this I thought to myself that she had better leave beekeeping alone, and remain with the work she was accustomed to—for the present at least.

I have kept bees for the last twelve years as a side line for pleasure and profit, and have had more or less success—enough, at least, to urge me on to greater efforts. Before I ventured into the business I lived in the city proper, although always a lover of nature. When very young my father lived in the country on a small farm, and perhaps I inherited this love of nature at an early age.

Before I kept bees I had never seen a bona-fide bee-hive until an intimate friend became interested and purchased two hives



Henry Reddert's suburban apiary, Cincinnati, Ohio.

from a beekeeper. He invited me to visit him; and when I did so my love for rural scenes all came back. I watched his bees coming in and going out of the hives for hours at a time, and I concluded to have some myself. I sent to the public library for a book on beekeeping. The first I received was written by Huish, an English writer. As it was written in 1817 the pages were yellow with age. Next I read Langstroth's "Honey Bee," then Quinby's "Beekeeping," and in addition I subscribed for two bee journals. This reading kept me busy for two years. I made two hives on the Langstroth pattern in the cellar of my home, all the while happy in the thought of my future venture. I read bees, thought bees, dreamed of bees, and awoke in the morning with bees buzzing in my ears. I certainly had the bee fever.

My next thought was to get a suitable location in the suburbs. My text-books and bee-journals had advised me about this, and I finally found one. My new home was surrounded by elm and poplar trees, with a few peach trees, a fine lawn, and acres of white and sweet clover all around. Here I took care of my two colonies, which I purchased from a go-as-you-please beekeeper, to the best of my knowledge and ability. I became interested in the beekeepers' association, and made many beekeeping friends.

During the last 12 years I have failed to get a crop but one year, when a very long drouth almost burned the clover out of the ground. My family is fond of honey, and now that we produce it ourselves we use plenty of it. The surplus we sell at a fair profit. We are all in good health, which can not be measured in dollars and cents.

The photograph shows a part of my apiary. The fence on the north side acts as a

windbreak so that my winter losses are reduced to a minimum.
Cincinnati, Ohio.

AFRICAN BEES STING BLACK WORSE THAN ANY OTHER COLOR

BY W. G. DAVIS

Here in South Africa, where beekeeping is still in its infancy, a good many bee-owners still persist in keeping bees in the old-fashioned way. Barrels, boxes, and, in fact, any thing in which bees will live,

are used for honey production. When I say bee-owners I do not mean beekeepers, for all bee-owners are not beekeepers. The majority of these, when they start taking the honey, cut out the brood and discard it, and take the honey. There is always a certain amount of honey allowed to be about, and



A BUNCH OF WHITE LEGHORNS AND THEIR KEEPER.

Dear Mr. Root:—I have read Mr. Root's many articles in GLEANINGS relative to his chickens, and have often wondered if he has tamed his as I have mine. The enclosed photograph is a picture of a bunch of White Leghorns we raised last summer, and myself.

Denver, Col., Jan. 15. MRS. LOUIS F. JOUNO.



W. G. Davis, Johannesburg, Transvaal, S. A.

the result is that the neighboring bees start robbing, and the trouble commences. Many head of cattle, poultry, etc., are lost every year through the carelessness of these so-called beekeepers. When this happens I am invariably called to attend to the bees, and I am sure I could relate a score of instances where the bees have done considerable damage.

The first time I was called I had on a black suit of clothes; and when I arrived at the scene of destruction the bees immediately set about stinging my clothes, and I am sure that there were hundreds of stings on the clothes when the bees were eventually quieted. Among the stock lost were black pigs and fowls, and also a black dog. On returning to my home I thought it funny that a buff-colored dog on the premises did not have a single sting on it, and I resolved to try an experiment on a future occasion. The opportunity was not long in coming, for a week later I was informed that a swarm of bees had gone on the rampage and killed a lot of poultry and a valuable cow. I took with me my new outfit—a khaki-colored suit and veil which I had specially made. On arrival at the scene there were 29 fowls, 2 turkeys, and a black and white cow lying dead. The bees were then stinging something awful; and although they had stung to death the above-mentioned stock, they did not attempt to sting my clothes or veil, although my assistant, who had on a black veil, received

a good many stings on his neck. There were nine Buff Orpington fowls in the yard with the others; and after the fray I examined those fowls thoroughly, and could find only three stings on those buff fowls, while those that were dead were literally covered with the stings. I have since used the outfit on a number of occasions, and found the bees never attempted to sting me when I had it on.

I submit this experiment to your readers for consideration. I feel sure they will quite agree with my remarks. There is one great drawback about a buff-colored veil; and that is, it is almost impossible to see the eggs in the cells when examining the frames of a bar-frame hive; but for special emergencies as above, I commend it to your readers for a trial.

Why do bees sting black? Why do we look askance at any thing that is foreign to us? There are not black flowers for the



A GLIMPSE OF OUR FLORIDA DASHEENS.

As the above picture was taken, as nearly as I can make out, some time about the first of July, the dasheens are very much larger just now, Aug. 5. The picture gives you a little glimpse of some of the Florida pine trees and other vegetation that grow on our five acres.—A. I. Root.



Sprig of pine covered with vegetable honey-dew. The leaves that glisten are fairly varnished over with the sweet secretion.

bees to work on, and black is consequently foreign to them, while, on the other hand, there are plenty of yellow and white flowers that they are constantly working on, hence their frenzy to sting the former color. I notice you mention the interior of the hive is black; but I think you will alter your opinion when I tell you I was locked in a dark room for 18 months with an eye trouble, a few years ago, and the only light in the room was admitted through an aperture not more than $\frac{1}{8}$ of an inch in diameter, and I can assure you that, after a week, I could discern every article in the room, and find my way about; therefore I say the hive is not totally dark or black.

Johannesburg, S. Africa.

HONEY-DEW ON PINE

BY J. C. BALL

I am mailing under separate cover some twigs of pine covered with honey-dew that I thought might be of interest to you. The honey-dew, I think, must have been caused by a heavy frost just after a very warm spell. I am sure it is from the pines, because there are no trees near but pines, and, besides, the other trees have not budded out yet. It is very seldom that it is seen on pines about here. Some seem to think that pines never have honey-dew. This has been on the pines about a week, and the ground is well spotted with it. Sometimes it hangs in large drops on the twigs.

Kinsale, Va., April 15.

[The above letter was sent to Prof. H. A. Surface, Economic Zoologist of the Department of Agriculture, Harrisburg, Pa., whose reply follows.—Ed.]

I have received and examined the sprig of pine from J. C. Ball, Kinsale, Va., and I find considerable honey-dew upon it. I find no plant lice nor scale insects, and must say that either some insect of this kind was present on the trees above these limbs and dropped the honey-dew upon them, or this came from glandular exudations of the pine tree, which is possible. In fact, upon careful microscopic examination of the specimen at hand I must say that there is no evidence that the honey-dew originated from any other source than directly from the bark itself without the intervention of insects. Internal glands will secrete sweet liquids of this kind.

H. A. SURFACE, Economic Zoologist.
Harrisburg, Pa., April 15.

LOCATING APIARIES CLOSE TO THE MAIN SOURCE OF NECTAR

BY LOUIS H. SCHOLL

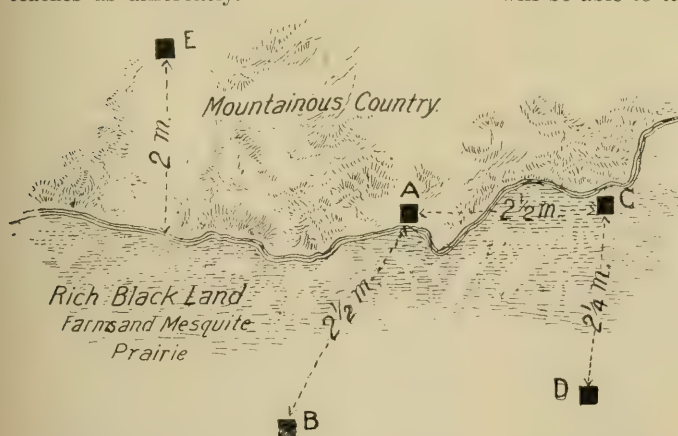
There is quite a diversity of opinion regarding the proper distance apiaries should be located from each other. I have been an advocate of smaller apiaries, located close together, for many years. My own apiaries contain 50 colonies each, and are scattered over the country, three and many two and a half miles apart. This way I get a good distribution and more evenly distributed

foraging of the bees. The loss of time caused by many bees foraging over the same ground near a large apiary, and others having to go a great distance from home, making honey-gathering less profitable, does not exist with my system.

There is considerable doubt in my mind about bees going any great distance, under ordinary circumstances, to gather nectar. The accompanying drawing of a number of my former locations may be of interest. Apiaries marked A and C are located at the edge of what we call the mountains or foot-hills. The mountainous country is suited for honey crops only in the most favorable years, and these have been far between the last few years. That made my observations of so much more value, and the evidence was the more apparent.

On the other hand, the apiaries marked B and D, in the black land farming and mesquite country, which is well suited to beekeeping, have done very well year after year, and produced good average crops. It will be noticed that these yards are only $2\frac{1}{2}$ miles from the other yards, even a little less in one, and that the distance to the edge of the foot-hills is only a little over two miles.

The two yards last mentioned outstrip the others every year, and the two yards just on the divide do not do nearly as well. It will be noticed that the distance is not great enough, it would seem, to make any material difference. Our own experience teaches us differently.



The apiary marked E, located two miles from the edge of the foot-hills, was in the mountainous country where enough forage plants for the bees abounded in this immediate locality to enable the colonies to build up to strong and even powerful colonies during the spring; but when the honey-flow came in the lower black-land country, only a few miles away, they would be on the

verge of starvation if forage was scarce nearer the apiary. We had to move this yard into the farming and mesquite land country, and since then they have done well.

If bees do go long distances to gather nectar, the yards that were located in the mountainous country should have done better than they did, especially those at the immediate edge, or on the divide. But those located away from the above territory, although only a few miles, did so much better every year that we have moved nearly all of our apiaries into this better territory, and are contemplating moving the few others also. This is pretty strong evidence, and I can vouch for its truthfulness.

New Braunfels, Tex.

REPORT OF ANNUAL CONVENTION IN NEW ZEALAND

BY E. G. WARD

The third annual conference of the beekeepers of New Zealand was held in Wellington June 18, 19, 20, and was well attended. A number of instructive papers were read, which were contributed by leading men from all over New Zealand. The conference was fully reported, and the proceedings will be printed in pamphlet form, and will include the papers contributed. This will form a permanent record, and be of great service to absentees in that they will be able to take advantage of the ex-

periences and instructions appearing. The New Zealand government has contributed \$50.00 toward the cost, and representations were made to several of the cabinet minister which, it is confidently hoped, will result in a number of extremely useful reforms being provided for by legislation at next session of parliament. Among these are compulsory registration of apiaries; compulsory grading

of honey, and regulations dealing with carriage of bee material.

The conference was opened by the Hon. R. H. Rhodes in the absence of the prime minister, who is minister for agriculture, and who is a leading agriculturist himself. Up till the present conference the industry has been in a rather disorganized state; but a new constitution has been adopted, and it

is now hoped that matters will go on smoothly.

The previous year's report showed that the late executive had established an export honey trade, and the product is being shipped partly to England and partly to Vancouver. As the honey shipped had been government graded, the quality could be vouched for; and as only the best had been sent, the confidence of buyers would be gained as it was graded and stamped by the Agricultural Department officers.

A good deal of discussion took place as to the relative value of fostering local markets or encouraging the export trade; and opinions were fairly evenly divided between the two.

A good deal of discussion took place regarding the value of advertising to increase local consumption. Many speakers contended that, if systematic advertising were done, there would not be any need to export. On the other hand, a strong section of those present, including Mr. T. W. Kirk, Director of Orchards and Apiaries Divisions of the Agricultural Department, contended that, if the export trade were pushed forward, the local market would take care of itself. The speakers instanced the success of the dairying, meat, and fruit industry, in support of their contentions, and, if any thing, were in the majority.

The incoming executives were instructed to consider the question of co-operation, and report in six months.

At the close of the conference an address was given by Mr. Lyman, on the export of produce to the west of England. The scheme was explained fully, and keenly discussed afterward.

A number of samples of honey were sent in by beekeepers from all over New Zealand, and these were graded by the officers of the department, and a report attached. This was an education to those present; and as it is the intention of the department to issue regulations very shortly, dealing with the handling of honey from the hive right through to the bottling for home trade or packing for export, there will be much information for those interested in a concise form.

The name has been altered, and the business will be carried on along somewhat different lines than formerly; and it is believed that the new constitution will consolidate the beekeepers and include all the existing associations as well as the individuals under a large association, somewhat on the lines of the National in America. The name adopted is the National Beekeepers' Association of New Zealand. A vote of thanks to the retiring officers and honorarium to

the Secretary were passed, and the conference of beekeepers of New Zealand for 1913 closed.

Christchurch, N. Z.

MY EXPERIENCE WITH THE STEAM KNIFE AND HONEY-PUMP

BY MORLEY PETTIT,
Provincial Apiarist, Ontario, Canada.

Since the advent of the use of power for running the honey-extractor, the two most important improvements along this line that have been made are the steam uncapping-knife and the honey-pump. The steam uncapping-knife consists of an ordinary uncapping-knife with a copper jacket placed over the flat surface, with a steam hose attached near the handle, and a small hole for the exhaust at the point. A copper boiler holding about four quarts of water, placed on a coal-oil stove, supplies the steam. It has a screw cap for filling with water, and a nipple for attaching the hose from the knife. The hose is about three feet long and $\frac{1}{4}$ inch in diameter.

The first time I undertook to use this knife I had an old coal-oil stove with one flat wick; and after waiting an hour or so to get up steam I found that it would not generate pressure enough to be of any use. We then secured a blue-flame oil-stove with an asbestos wick. In operation I find that the more steam pressure we have the better results, because the hotter steam is dry, and does not cause so much drip from the point of the knife. For the best work I find that there must be a good strong jet of steam coming from the point of the knife all the time. The regular steam uncapping-knife is of the Bingham style, with the broad trowel-like blade. For my experiment I asked to have a steam-jacket placed on one of the Jones knives. When it reached me I found that the blade was shorter than I had suggested. The blade is only about $8\frac{1}{4}$ inches long whereas the Langstroth frame is $9\frac{1}{8}$ from top to bottom; and to get the best work from an uncapping-knife it must be long enough to reach clear across a Langstroth frame with at least an inch to play on for slanting the knife or giving it a sawing motion. So, although I have not had a chance to try it, I am sure I could do much better work with a steam uncapping-knife having a blade $10\frac{1}{2}$ inches long. Up to the time I tried the steam knife the best knife I had been able to secure for rapid uncapping with Langstroth frames is a knife with a straight blade about $\frac{1}{8}$ inch thick at the back, $1\frac{1}{4}$ wide, and $11\frac{1}{2}$ long from the handle. When combs are well bulged, and

the operator has a strong wrist, he can uncapp one side of a comb with one long steady stroke.

It has always been a puzzle to me why beekeepers who are anxious for just such a result in uncapping will so often reduce the width of a few thousand combs instead of adding a couple of inches to the length of two or three knives. Now, if a long blade is good in a cold knife, how much better it would be on a knife that is heated with steam! However, my experience with the steam knife teaches me that in any case a heated knife is very much better than a cold one, especially if the combs are stiff and the honey cold.

Ever since I first learned, several years ago, that some one was using a pump in connection with a power extractor for taking the honey from the extractor, I have been anxious to give it a test; but reports from those who tried pumping honey last year were not very favorable. At the convention at Amherst, Mass., in June, Mr. E. R. Root demonstrated the honey-pump sufficiently to my satisfaction to persuade me to give it a trial. He took 200 pounds of thick cold honey and pumped it from the extractor, raising it about eight feet, and conducting it about ten or twelve feet horizontally. The pump works on the rotary principle, and is connected by means of a belt with the cross-shaft of the extractor, a pulley wheel being placed on the outer end of the cross-shaft. The instructions given with the pump indicate that it is to be connected by means of a rubber hose with a special opening in the side of the extractor; but not having a tinsmith handy, and wishing to avoid cutting a hole in the extractor-can, we took a longer piece of rubber hose and brought the end of it around to the regular gate of the extractor-can, wrapping it with paper to make it fit snugly in the opening. It took considerable experimenting to get every thing to work satisfactorily. First, it seemed to me that the pump would be less in the way if it were back near the engine; so a longer piece of hose was used for conducting the honey from the gate around to the back of the extractor; but when the pump was in operation we found that the friction in the longer hose caused the honey to travel so slowly that the hose was not able to resist the suction of the pump, and collapsed, flattening out so as to interfere very much with the passage of the honey. The pump was then moved up to the front of the extractor, near the tap, and a shorter hose used. Still there was trouble because the hose was not strong enough to stand up under the air pressure; so a stronger piece of hose was

put on, and there was no more trouble from that corner. For conducting the honey from the pump to the storage-can we used about 20 feet of ordinary one-inch rubber hose, fastening it up with cords to be out of the way. We found that, when the honey was cold, the pump would not raise it to the height of nine feet and force it along through that length of pipe; but by lowering the hose to a height of about seven feet from the floor it worked very well.

Another source of trouble was the slipping of the belt on the pump; and it seems to me it would be much better in sending out a machine to the general run of beekeepers to send a pulley-wheel with flanges, which would keep the belt from coming off when the alignment and tension are not exactly right. We placed a little honey on the belt, according to directions, and found that that worked well when just the right quantity was used; but a little too much caused the belt to slip off.

The first thing in the morning we found that the honey which had been smeared on the belt the night before had collected moisture, and was so slippery that the belt and pulley-wheels had to be very thoroughly wiped dry before they would work. The honey-pump, like any other machine, requires a certain amount of attention, and is for beekeepers who are adapted to handling machinery; but neither it nor the gasoline-engine requires any more skill than the multiplicity of machines that are used in all farming operations at the present time.

The first half-day that I operated the steam-knife and pump I was able, working alone, to uncapp and extract about 1100 pounds of honey, practically all of which was cold, and mostly capped. While this was not a large record, still it was good for the first half-day with the implements.

Another suggestion would be to attach the pump direct to the engine or shafting, and not to the extractor. Having the extra load delays considerably the frequent starting of the latter after changing combs. In spite of details which need improving I would not care to handle a crop of honey without the help of the steam knife and the pump. I don't see how I ever got along all these years without either. I don't intend to be without them in the future.

The next improvement most urgently required is a hot-water jacket on the extractor, connected with the water-cooler of the engine. By using this the honey could be pumped more easily, and would strain readily through a strainer placed on the store-can.

Guelph, Ont., Canada.

[Referring to the flat-wick oil-stove as mentioned by our correspondent, we have found that it is really necessary to use a blue-flame stove in order to furnish enough steam to keep the knife hot when it is imbedded in the cold honey, as is the case when uncapping bulged comb.

If an oil-stove is used, care must be taken to see that the asbestos ring which takes the place of a wick is not covered with carbon; otherwise it is difficult to control the heat, and under such conditions the valve must be opened so wide to keep the stove burning at all that entirely too much flame strikes the boiler, with the result that the steam blows furiously from the end of the knife, and the water in the boiler is evaporated too quickly. A gasoline-burner can usually be controlled rather easier than an oil-burner. With the proper control of the heat, three quarts of water in the boiler will run the knife half a day.

There has been considerable difference of opinion in regard to the length of the blade of the knife. With combs that are bulged, there is no doubt in our mind but that a long blade is an advantage. With combs that are rather closely spaced, so that the surface is depressed in places, the shorter blade seems to be handier. We ourselves prefer a blade a trifle shorter than the width of the comb. With a sawing motion the cut is easily extended the entire width of the comb, and then when a comb is to be uncapped, the surface of which is depressed somewhat below the top-bar, the shorter blade comes in handy, for it can be tilted slightly, and works down into the depressions easily. However, much depends upon the manner of using the knife.

For best results in using a honey-pump, the shortest possible length of pipe must be used between the extractor and the pump. A long pipe creates so much friction that the honey does not run by gravity to the pump fast enough. The pump will not deliver honey to its full capacity unless the honey runs to it by gravity as fast as the pump can handle it. For this reason the pump should be a little lower than the opening into the extractor, and the tube should be as short as possible. Moreover, the tube must not show any tendency to kink, as this reduces its capacity.

A rubber hose is not to be advised for conveying the honey from the pump to the tank, for it is difficult to prevent it from kinking slightly at the points where it is supported, thus reducing the capacity of the hose and causing a back pressure on the pump.

Probably it would be better to use a flange pulley on the extractor shaft; al-

though if there is a decided tendency of the belt to slip off, the flange pulley will not overcome the difficulty, for the edge of the belt would ride the flange and in a short time ruin the belt. If the pulleys are lined up properly, and the pump located so that the belt will remain tight, there is no trouble with slipping. Occasionally a piece of old tough comb broken off, or a chip from a broken end-bar or top-bar will find its way into the suction pipe, and finally into the pump. This will cause the pump to stick momentarily, throwing off the belt. It does no good to attempt to put the belt on immediately, for it will only come off again. The pump should be worked backward a revolution or two with the hand, then forward and backward a few times until the obstruction is finally broken and carried through the pump. Great force should not be used, as there would be danger of injuring the pump. It is only occasionally that this happens.

A very little honey on the belt is all that is necessary, a drop or two at a time being sufficient. If there is any accumulation of honey on the belt and pulleys it does more harm than good, as our correspondent says. Only a great accumulation would absorb moisture from the air, and make trouble the next morning.—Ed.]

Caging the Queen in a Cage of Perforated Zinc to Prevent Swarming

Dr. C. C. Miller:—In June 15th GLEANINGS you gave your method of controlling swarming. I will just tell you how I do it out here. When there is a likelihood of the bees swarming, the strongest are examined for queen-cells. If any are found they are destroyed, and the queen is caged for ten days on the top-bar in the same hive. On the tenth day make an examination for queen-cells. If any are found they are destroyed. Raise the cage and liberate the queen; ventilate the hive by raising it three or four inches off the bottom. If supers are on, ventilate by shoving one forward and the other backward so as to leave a space of $\frac{1}{4}$ or $\frac{3}{8}$ of an inch. If the queen is old, kill her and allow one of the cells to hatch; or a select cell, if any is on hand, is given. If not, instead of liberating the queen kill her and introduce a young queen.

A piece of perforated zinc is the material of which the cage is made. Bend the edges so as to bring it into a trough shape. Press it on top of a frame; raise one side about $\frac{3}{8}$; catch the queen and put her under and press down. While she is there the bees won't build any more cells unless the queen lays in them, which she can not do, being caged. That is the way it works out here. Perhaps there is a difference over on your side; but there might be some variation to make it work.

J. E. THOMPSON.

Halfway Tree, Jamaica, B. W. I., July 7.

Dr. Miller replies:

This is interesting, and much the same as things are done here. The cage is quite ingenious; but with the queen caged I should expect my bees to start cells in many if not most cases. To be sure, the queen can not lay eggs in queen-cells; but the bees can start cells with worker larvae.—C. C. MILLER.

Heads of Grain from Different Fields

Honey from Diseased Colonies; Rendering up Foul-broody Combs

I wish you would be so kind as to give me the following information: Do you think one is liable to contaminate healthy colonies of bees by the use of supers and fixtures in the production of comb honey that have been used over colonies having American foul brood—that is, if frames, supers, and slats have been used over colonies, using new sections and starters in the supers? Do you think comb honey produced over a foul-brood colony has the germs of foul brood in them? Do you think it is necessary to char or scorch the super boards used over foul-brood colonies?

I should like information as to the best method of separating honey and wax from diseased brood-combs. I have no extractors or wax-press, but have a fruit-press.

Pittsburgh, Pa., July 30.

G. L. CRAIG.

[As a general thing it is wise to err on the safe side. Any thing that has been in contact with a diseased colony, especially combs or honey, is liable to convey the disease if it is placed over or in contact with a healthy colony. We say *liable*. We do not mean by that that it is *sure* to do so; but it has been customary on the part of producers to sell honey produced in sections or extracting-combs that came from colonies having disease. Whether the practice will be prohibited some time in the future we do not know. Honey from a foul-broody colony will not affect human beings; but the danger is right here: If the housewife or maid does not burn the sections after the combs are cut out, and if she throws those same sections into the garbage-can or into the back yard, the chances are that the bees in the vicinity will help themselves to the honey drip, and thus carry the infection to their hives.

Yes, comb honey produced over a foul-broody colony may have the germs.

It is advisable to scorch the inside of hives, supers, and super-boards, not enough to char, but just enough to blacken the wood that has come from infected colonies. Our experience has shown that such hives and hive parts may transmit bee disease. Some 25 years ago we were unable to clean up foul brood where we shook back into the same hive; but we had no trouble after the insides of those hives were scalded out or scorched out. If you have combs which are infected with foul brood they should be removed from the hives, and frames of clean foundation should be put in their place. The old combs should then be extracted, and afterward melted up in a wash-boiler containing hot water. Fork the mass out with a stick after the combs are melted. When you are through, burn the frames or subject them to a further treatment in boiling water. But we would advise you to destroy them, as the hot water has a tendency to spoil them.

The wax may be dipped off from the surface of the slumgum. But a much better way is to cut the combs out of the frames, put them in a burlap sack, and weight them down under hot water. The sack is then punched with a stick to break the combs and free the wax. But such a method of rendering is very wasteful; and if you have very much of it to do, you would save money by buying a regular wax-press. The fruit-press you have would not be heavy enough nor strong enough to squeeze the wax out of refuse comb. When wax brings from 30 to 33 cts. per lb. it is well to get as much of it as possible. If you have only four or five colonies the wash-boiler method may be good enough for the time being. But when through with the work be sure to clean every thing thoroughly; and the honey that is extracted should be sealed at once in metal or glass cans. To render it free from danger it should be heated over a slow fire for at least twenty minutes

—that is to say, it should boil for that length of time. But such boiling will generally spoil honey for purposes of marketing; and we should be afraid to give it back to the bees for fear of starting disease again.—ED.]

Some Observations upon Winter Cases and Moisture

During the discussion of a paper relating to wintering, which I had the honor of reading at the annual meeting of the New Jersey Beekeepers' Association, on Dec. 20 last, some light was thrown upon the question of how the moisture in the hive is disposed of under a sealed cover.

I assumed that the hive walls are always colder than the atmosphere in the hive, and that, consequently, moisture is certain to condense thereon; and if the wall surface is waterproofed, the water of condensation will run down and out without further harm. I also stated that water trickling from the corners of the hive entrance is sufficient evidence that things are operating in accordance with my assumption.

These propositions looked good until Mr. C. H. Root, of Red Bank, who is probably the largest practical honey-producer in the State, asserted that he "never had any water coming from his hive entrances," and then asked, "How is the moisture disposed of in such a case?" This was a poser until Dr. Phillips gave the solution by saying "the moisture is *not condensed*, but remains suspended in the atmosphere as vapor, and passes out by way of the entrance in that form, the inside of the hive being maintained at a temperature above the dew point," which is the degree at which condensation takes place.

Now, it is plain that such a condition is exceptional; but having seen Mr. Root's winter-hive cases I began to realize and appreciate their value and effectiveness. They are certainly more effective than any double-walled hive so far brought forward.

In the matter of winter protection, first cost may decide what method to adopt; but within reasonable limits it may be wiser to consider effectiveness in the long run as an offset to first cost. I can not state the cost of these cases; but it must be considerable. They, however, last for years, and render full value every season. Mr. Root stated that he may lose in winter one, two, or three colonies among the 300, more or less, which he has. This is certainly a most remarkable record, and no stronger endorsement of his method could be desired.

A somewhat similar winter case was described and illustrated in GLEANINGS for Jan. 15, 1908. Briefly described, Mr. Root's case is made 4 to 6 inches deeper than a hive-body, and without top or bottom. It has double walls four to five inches thick, outside measure, and is packed with planer chips or sawdust. It telescopes down around the hive-body closely, and rests upon the hive-stand. When so placed the vacant space above the sealed cover on the brood-nest is packed full of leaves, and a regular hive-cover is put on. Suitable provision is made in the case for the entrance. During the summer these cases are stacked up out of the way, with a hive-cover on top.

The advantage of such winter cases lies in the fact of keeping the hive so very warm that positively no moisture condenses anywhere, and consequently no harm is done. Everything considered, it appears there is in winter never any danger of keeping the bees too warm out of doors. Then there is the other advantage that there is no heavy or clumsy encumbrance of the hive as with the permanent packed double hive. Having operated a season with hives having double walls 2 to 3½ inches thick, I appreciate the greater convenience of the single-walled

body, which can be exchanged or reversed, and used either as brood-nest or super without the necessity of transferring frames.

Where lumber is cheap, and the beekeeper is handy at woodworking, these cases would be less expensive; and, once provided, would be always ready for winter preparations with the least fuss.

Bees, in the hive where conditions are comfortable and agreeable, will not fly out when the sun shines if the temperature is not right. On the other hand, if there is no effectual arrangement for keeping the hive so warm and so comfortable, then things are different, and dampness must be reckoned with.

New Jersey.

C. D. C.

Visit of Dr. Phillips to Porto Rico; 1000 Pounds from One Colony

The readers of GLEANINGS, perhaps, would like a message from Porto Rico. The most important event which has taken place in our life as apiculturists has been Dr. Phillips' visit to this island. He landed on the 29th of May, and was the guest of my good friend Mr. Van Dine, entomologist of the experimental station of the Association of Sugar Producers of Porto Rico.

On the following Sunday he visited my apiary, and spent a few hours in my home. He questioned me, among other things, about the production of honey, and was much surprised when I told him that the average output per colony was from 240 to 300 lbs., but he was able fully to realize the truth of my statement during his visit round the island, when at one of the many fine apiaries he was told by the owner, Mr. Mejia, that one colony had produced 1000 lbs. of honey. What do you think of that?

On his return there was a conference in the assembly hall of the University of Porto Rico, which was well attended. Limelight pictures were used. Dr. Phillips thinks that this is an ideal place for beekeeping, as we have no bee diseases of any kind. But one great obstacle in the way of beekeepers is ignorant competition; and as a proof of what I say I shall cite the fact that, in the city of Ponce, when the town council gave orders that all hives were to be taken out of town, one thousand colonies belonging to different owners were moved. This island is very small and densely populated; and if the bee fever continues as it has begun, Porto Rico will soon be overstocked with bees.

V. A. TEXERA.

Rio Piedras, Porto Rico, June 27.

A Woman who would Rather Work with Bees than to go to Pink Teas

I now have 24 colonies in the cellar, and do all the work myself except putting them in and taking them out, when my little girls help. It is a rather awkward job, as we have no way of getting them in except down through a very small trapdoor in the floor. We accomplish it, however, by taking away the stair steps and letting the hive down by ropes attached to the four corners of a box end of the right size. We take them up the same way without the assistance of a man at all.

I love every branch of the work (with the exception of wiring frames). Can't some man devise a way that is easier than that? The carpenter work I like very much, and I have always regretted not being a boy, for the reason that girls can not very well be carpenters. Nailing up hives and frames satisfies the longing. It is clean work handling and putting together the fresh beautifully cut wood.

I can truthfully say that nothing in beekeeping is impossible to a determined woman except, perhaps, climbing a tall tree, which is the only time I ever need the assistance of the men, and that is not very often, as I clip the queens. Never shall I for-

get the first one I found after two or three days of searching in a very populous colony. My fingers trembled so that I was afraid I should squeeze her and kill her before the wing was clipped.

I have found that beekeeping is an ideal occupation for women, as they must be so much in the open air. Some of the work is heavy, of course; but one can do it. I weighed only 101 pounds three years ago, when I first got my bees; but I now weigh 120, and am not nearly so nervous and weak. Manitoba has a very short honey-flow, as we can not put the bees out till May 1; but most years there is a very good crop from the wild clover and other flowers. Two years ago I dedicated one of my eight colonies to the church to help pay the minister's salary. That hive gave me four supers of one-pound sections. It was a good one; but some of the others did almost as well.

The summer months here are so very hot that we have a great deal of swarming; and as our present cellar will not accommodate more than 25 colonies (by tight squeezing at that), could some person tell me a plan to keep them down to that number? Could I unite them some way? After practicing the shaken-swarm plan I shall have 48 or more. As they sometimes cast a swarm from the new one away on in August, I wish to keep all the bees.

I would rather hive a swarm than attend the pinkest of pink teas or go to a ball, and I am very fond of society too.

MRS. Y. N. WESGATE.

Portage la Prairie, Manitoba, Can., July 4.

[By shaking the second time, after three weeks, you get the rest of the bees in the parent colony into the new hive with the swarm. In this way you can keep down increase if you desire.—ED.]

Smashed Combs in a Bee Tree

About ten days ago I cut a bee-tree on my farm three miles from Hicksville. This colony contained a million bees and a barrel of honey. It filled the hollow in an oak for a distance of nearly six feet, and the diameter inside is 14 inches. We cut out the log and found the combs at both ends in good condition. We nailed it up and hauled it on some hay bedding to Hicksville, where, with great triumph, we set it up. The first day after, there seemed to be a large number of bees; but on the days following they were very quiet, and honey began to run out at the bottom of the "gum" as we call a hollow tree out here in the woods. Two days ago we took it down and sawed off a piece from the upper end, where we found every thing all right. When we opened the lower end we found it a mass of smashed comb and dead bees. We dug out two bushels of comb loaded with honey. We left a foot of the comb in the upper end, which is intact, but has a little honey. I found no eggs in the empty comb. I feel quite sure that the queen perished.

Hicksville, Ohio, July 21.

J. H. DIEBEL.

[From the general description given in your letter of July 21 it is evident that the combs broke down in the lower portion of the log hive probably during the time that you moved it. When you set it up these smashed combs fell down upon the bees, killed the brood and bees, and finally the honey began to run out at the bottom, as you describe. It is not at all certain that you have killed the queen, but there is a possibility that this may be the case.—ED.]

New Zealand Beekeepers Organize Under a New Constitution

The beekeepers of New Zealand have organized under a new constitution. The meeting was attended by nearly all of our leading beekeepers—some 7000 colonies were represented by their owners. The general feeling is that it was good to be there.

Wellington, N. Z., June 20.

R. N. BRIEKELE.

Our Homes

A. I. Root

Cast thy bread upon the waters; for thou shalt find it after many days.—Ecc. 11:1.

WATER FOR BEES WHILE BEING SHIPPED BY MAIL AND EXPRESS.

Almost as soon as GLEANINGS was started, in 1873, I began planning for the shipment of queen-bees by mail; and I declared that a good serviceable queen should be sent by mail postpaid for an even dollar. But just as the new industry had begun to assume considerable proportions, owing probably to the work of careless beekeepers queens were ruled out of the mails by the Postoffice Department. Our good friend Prof. A. J. Cook, then of the Michigan Agricultural College, made a trip to Washington and interviewed the President, telling him of the importance of bee culture to the world, and the result was that queens were again permitted to go by mail. However, before traffic was once more restored a quantity of queens piled up on my hands, and I was for a time in a predicament.

With the above preface you will readily catch on to the following, which we reprint from GLEANINGS for September, 1878—35 years ago:

HOW TO KEEP EXTRA QUEENS ALMOST ANY LENGTH OF TIME; ALSO HOW TO GET OUT OF TROUBLE OF ANY KIND.

About the time queens were thrown out of the mails I was really in trouble—not for myself alone, but on account of the many that were sending me queens, and who were, perhaps, less able to stand the loss than myself. As soon as the order was received we dispatched postals to everybody who had been sending us queens, but for all that they kept coming. Day after day had I said, “Well, I really can not think we shall have any more; so keep up your courage, boys, and keep on dividing and making room for them.” We did so, but more kept coming. Hayhurst had just sent us a package of 25 or 30; Henderson had sent as many more; then Moore, of Atlanta, Ga., came in with a fine lot; and, besides the above by express, a lot of the A B C class were just getting the hang of the business, and they swarmed in at every mail, with their queer cages but nice bright queens until I almost began to be sorry I had ever taught them how to raise queens. Some of those that had been notified kept sending them in, saying they had nice queen-cells just hatching, and they must put the queens somewhere, and they thought I *sure* could get along with a few more.

One evening toward the first of August

our friend Charlie came in with another great bundle of queen-cages; and as I thought of the queens spread all around in the honey-house with every thing that we could think of given them, just to make them hold on to life a little longer, I am afraid I got into one of my ugly moods. It is nothing very strange, for I do have such moods, and am afraid I always shall, now and then. Said a bad “impulse,”

“Of course that fellow had received your postal card, and knew better than to send you those queens. I would send ’em right back, and let him bear the expense, to see how he likes it.”

But a better impulse said, “Steady, my boy; you are perhaps better able to take the shock of this event than many of your pupils, and you have no right to assume that they had received your notice. You have often said that calamities were sent on purpose to teach us useful lessons. Had you not better brighten up and grasp the situation squarely, and see what the lesson is that is to be learned?”

As I mused, I got into a better mood, and went upstairs around into the wax-room. The hands were all gone for the night, and it was still and quiet. I remembered how Mueller had asked God for every thing he needed for his work among the people, and it occurred to me that it could not be a wrong act to kneel down there and ask my heavenly Father to help me to be a better friend to those who entrusted their queens to me, and to ask him to tell me what to do with them, not only for my sake, but for the sake of all these bee friends all over the land. I did so, and after that I never borrowed any more trouble as to what I should do with the queens. I did not know at once what was to be done, but I felt as if some “old hand” were going to tell me just what to do, and so I looked cheerful.

I suppose I began to give the matter earnest study; but it seemed as if some one talked to me something as follows: The queen and bees, to stand long confinement in small quarters, must have clean, pure, fresh food. The honey that is used to soak the sponges often acquires a musty or sour smell in hot weather, and the bodies of the bees that come the longest journeys are often distended, especially after they begin to die badly. The candy made with flour answers nicely when first made, but after it gets dry and hard, the bees have nothing wherewith to moisten it, and so they die,

as you have so often seen. Cages prepared with fresh candy every day you send out bees might do, but this would be well nigh impracticable; for the cages could not well be used again, and those kept in stock or sold would endanger the lives of the queens, unless they were used at once. Honey mixed with the candy, although it answers well for short voyages, will never do for California and Texas, and the bees fed with it often have distended bodies, even when sent but short distances. Hayhurst's queens seem brightest and most natural, and his cages are probably filled a few at a time, and just before they are sent off. The experiments made with coffee or loaf sugar, years ago when the dysentery prevailed, seemed to indicate that it is a sure remedy for the distended bodies, and that as a diet it is more wholesome than honey. How shall we keep the candy from getting dry? Wetting it, just before being sent out, often daubs the bees, and answers for but a short time, even then. Putting in a sponge filled with water does better, but that will get dry and hard, even while coming from the Southern States, to say nothing of crossing the great dry deserts on the way to California. Some plan to enable the bees themselves to mix the sugar and water daily just as they need it, is what is wanted; can this be done? My mind wandered on a glass honeycomb; but the motion of the cars would shake the water all out. I thought of a large glass bead, with the water held in by capillary attraction; and, finally, I went into the drugstore and asked for some very small vials. They were out of half-dram, but had dram vials. I thought these too large, but finally took some, and soon had one filled with water with a groove cut in one side of the cork, that would just let a bee get his tongue in. It was placed over a ten-cent candy-cage, as shown in the right-hand cut below.*

As soon as I got it nicely fixed a friend sent three hybrids by mail. Although they had had a long journey, and one bee was dead already, they were given a bottle each and placed back of the typewriter. They found the orifice in the cork almost at once, and were very soon scampering about in the cage as lively as could be. They have been now caged in the same way ten days, and are as brisk and lively as one could desire. After it was settled that water and candy was all they needed (and I was surprised to find that a dozen bees would consume a dram of water in about ten days), the problem was how to fasten the bottle in the cage for shipment, so that it could

never shake loose, and yet so that it could be taken out to be filled. Our friend Will, who handles the queens, solved this problem by pushing a pin through the end of the cage and through the cork of the bottle, as seen in the cut at the left. The cage is represented with the wire cloth removed, to show the position of the bottle. The other end of the bottle is fastened by a pin set over it. As soon as it seemed to be a success, all the queens, both blacks and hybrids, of which we have a great quantity that have been shipped and stopped because no one will pay the express charges on them, were supplied with bottles of water, and not one has died since, where they had any kind of chance. They have been sent out daily, by express, sometimes as many as 20 or more a day, but not one failure has yet been reported. In one of the larger cages where the bees have been caged over a week, the bees clustered precisely as in comb-building; their bodies are small and natural, and yet they have consumed quite a large quantity of candy or sugar, and have had no fly at all.

Many of you have lost queens while caged and lying on the frames. Sometimes it was hard to explain why they died. We now introduce all our queens in these bottle cages, and have not yet lost one in them. One imported queen was lost; but, when examined, it was found that a cage had been used, by mistake, without any bottle in it. For sending bees across the ocean I would use cages with two bottles in them, placed with their mouths in opposite directions. If the cage should stand on end, so that the water was not near the mouth in one of the bottles, the other one would be just right. It makes me shiver to think of the poor bees I have probably consigned to death by thirst during these long summer days, simply because I knew no better. Hereafter the little fellows shall have all the water they wish; and if my invention should be of any use to the bee friends of our land, give God the praise, for it was given me in answer to prayer. A brisk trade is now starting up by express, and I shall probably soon want all the queens you can raise, if it be really true that we are to have no more losses in handling these wonderful little friends of ours.

Aug. 8, 1878.—The three hybrid queens have now been in the bottle cages 11 days, and are as lively as at first. To be sure that they had nothing but candy and water, I wrote to the friend that sent them, asking how he made the candy. This is his reply:

The way I make my candy is this: I put coffee A sugar in a new tin cup, and add water until, by mixing or stirring it with a paddle, every particle

* As the cut referred to is not readily available at this late date, and as it is not specially important, we omit it.

is wet. I then set it over a stove and heat until every particle of sugar is dissolved. When it is thoroughly melted or dissolved, remove from the stove and keep stirring it until it begins to cool or grain, then put it in the cages. M. G. KEENEY.

Quercus Grove, Ind., Aug. 6, 1878.

Aug. 12.—It is now over three weeks since the hybrid queens were imprisoned on the water and candy, and still they are alive and brisk. A few of the bees have died, but this length of time would suffice for a journey to California and almost across the ocean. As the bees in one of the cages seemed disposed to cluster as bees do in building comb, I have had a cage made of one of our section boxes, and supplied with sugar and a bottle of water in the same way. About 200 bees were put in, and the miniature hive stands beside my typewriter. Somewhat to my surprise, they commenced comb-building at once, and show no signs of wanting to get out. Perhaps we may get out an observatory hive for a parlor ornament, to allow the bees to fly, or not to fly, as we choose. Instead of glass, which is generally used, I would have the sides of a coarse-mesh painted wire cloth. This seems to annoy them so little that they do not act as if confined.

Aug. 25, 1913—35 years later:

I want you to notice particularly the second heading—"How to Get out of Trouble of any Kind." The above article came to mind just now because of the success our company is having by the use of water for shipment, not only by mail but by express, especially during the hot months of June, July, and August. At the time I made the discovery that the lack of water was the "missing link," I had copies of the above articles printed and sent out as advance sheets to the large number of friends who had been engaged in raising dollar queens, and I confess I was a good deal disappointed and perplexed to find this matter of water-bottles was for a time dropped, not only by other shippers, but by The A. I. Root Co. I still felt, however, that it *was* in direct answer to prayer; and when the matter came up again, 35 years afterward, I thanked God, because, after all these years have passed, it transpires that I was then *exactly right*. Ernest has told you elsewhere what wonderful success we are having, not only in mailing queens but in shipping bees by the pound all over the country. In giving place to the above, printed 35 years ago, I have been wondering how many of those whose names are there mentioned are still alive and keeping bees.

Later.—After having dictated the above, Ernest reminds me that we stopped using water in queen-cages because we found the "Good candy" answered so well that. by

general consent, the somewhat expensive and troublesome water-bottles were omitted. If the Good candy is freshly made, say the day the queen is sent off, and the distance is not too great, there is generally sufficient moisture, depending largely, of course, on the locality and the state of the weather. But for long shipments, and especially with bees by the half-pound or pound, or more, during hot sultry weather, water in some form, and in considerable quantities, according to the number of bees, seems *now* to be almost an *absolute necessity*. Let me refer again to that quotation of 35 years ago:

"HOW TO GET OUT OF TROUBLE OF ANY KIND."

The above indicates that 35 years ago I was getting into the habit (like George Mueller) of going to the great Father with all my troubles. Now, I am not sure that I have followed this up all through the past since that time; but whenever any real trouble has confronted me or mine, I believe I speak truly when I say that, sooner or later, I got off by myself and told the dear Savior all about it. A good many times what he pointed out looked difficult and hard; but when I followed the dictates of that "still small voice," peace, comfort, and happiness came. On page 467, July 1, a suggestion is made that I "ought to do an immense amount of good," if I have access, in the way I have described, to divine help in all emergencies. Without any desire to boast, let me submit the matter to my readers. Has not our journal, in the years that are past, to use that writer's own expression, done "an immense amount of good" to the world? If so, as I said 35 years ago, give God the praise.

A visitor called on us yesterday who is interested in growing alfalfa. He said a friend of his out west has secured this season 90,000 lbs. of honey. Bee culture alone has made great strides, and for this we are devoutly thankful; and if our journal has been also the means of helping righteousness, temperance, and purity to make tremendous strides I shall be more thankful still. Give God the praise. To go back to our opening text, let us not be afraid nor get weary in continuing to cast our bread on the waters of humanity. And let us remember the promise that we shall "find it after many days."

THAT "GREAT UNEXPLORED REGION."

The *Sunday School Times* for June 28 has been kind enough to comment as follows on my Home papers for June 1 and July 1:

We are liable to know some truths better by hearsay than by personal experience. A man who had

been exasperatingly annoyed by some town boys turned on them unexpectedly one day with a look so pleasant that they were quite taken aback. Then he spoke to them pleasantly. And then they stopped bothering him. Commenting on his own experience he said that "Returning good for evil is a great unexplored region." Yet most of us have opportunities for starting on an exploring expedition in that region almost any day. Suppose we investigate.

While reading the above it occurs to me that some of the meanest men I ever came

across have been redeemed and transformed by showing them kindness, and that you have not only forgiven but forgotten some past unpleasantness. I have seen such men made over. But right now, while I dictate, my conscience troubles me for using the term *mean* man. They used to be what the world calls "mean" and hard to get along with, but they have been transformed by the Christlike spirit.

High-pressure Gardening

HYBRIDS—THEIR SUPERIORITY THROUGHOUT BOTH THE ANIMAL AND VEGETABLE KINGDOMS, MANY TIMES, TO EITHER PARENT; SOMETHING ABOUT TOMATOES.

I have frequently mentioned my chickens in Florida that are a cross between the Buttercups and the White Leghorns. I made this cross, for one thing, to see if I could secure in this way more pullets than roosters. I also expected to get a better strain of layers and hardier chickens; and I think I have succeeded at least pretty well. Now, a very good friend of mine, Mr. E. C. Green, formerly of the Ohio Experiment Station, has made it his business for many years not only to test different varieties of tomatoes but to test crosses made from these varieties; and he has given the vegetable world, through the agency of our good friend W. Atlee Burpee, several of the very best tomatoes now grown. Well, last April, almost as soon as I arrived at Medina I went to our greenhouse and got six potted tomato-plants. Mrs. Root said that six would be ample for our small family. About two weeks after, I met our friend Green and he told me he would like to have me try a few plants of the new hybrids which he has been getting out. He brought me six, not potted, but just taken from the seed-bed. So we have twelve plants instead of six for our family. You may remember we had some severe frosts along the middle of May, and it was rather tough on the tomato-plants. It would have killed them all, no doubt, had I not covered them with pails and some boxes. I knew wooden pails would be better than metal; but not having enough to go around, I used one tin pail over one of the hybrid plants. The frost froze it down to the ground. The rest came out all right. But this one plant put out a sprout down close to the ground, and quickly caught up, or nearly caught up, with the rest. After the frost we had a week or two of cold winds and bad wet weather. The tomatoes all looked so sick that I did not expect much of them, but I began

to notice right away that the new hybrids seemed to be hardier than the pot-grown plants from the greenhouse. Well, these hybrids, although put out in the open ground two weeks later, bore the first ripe fruit. A little later Mrs. Root asked me if there were not some more tomatoes, and I told her I hardly thought there were. But I went out with a tin pan, got it full, and pulled off my cap and got that heaping full of great smooth purple beauties. I was surprised to find some of the handsomest had ripened up and commenced to crack open when they had been under foliage clear out of sight. This proved, as you may readily believe, one of my "happy surprises." I hastened down to my friend Green, and found he had pretty nearly half an acre of just such plants. Said I, "Friend Green, you are going to save a lot of seed from these nice tomatoes, of course?"

"Why, Mr. Root, I can not do it. These plants and the ones you have are the result of hand-pollination. In order to get this strain of tomatoes I was obliged to take the pollen from the Earliana and cross it with the pollen on the blossom of a Potato-leaf tomato, or something similar to the Potato-leaf. Now, this first cross, as you have noticed, is certainly superior to either parent; but if I save seed from these hybrids I shall have a mixed-up mess and nothing like the parent. This matter is pretty well recognized at our experiment stations, and is fully discussed in a bulletin I will lend you. The title is 'Bulletin No. 346 of the Experiment Station, Oneida, N. Y. Influence of Crossing in Increasing the Yield of Tomatoes.' Now you see that all of us who are growing tomato seed are up against an obstacle. This precious seed is obtained only by what is called hand-pollination."

Mr. Green here took his knife and showed just how he did it. He got some pollen on the point of the blade from one variety, and carried it directly to the blossom of another, and the fruit has to be watched

and taken from each blossom thus treated. The consequence is, such seed as this, every one grants, is superior, but it would cost too much in the item of labor alone to be sold at any thing like usual prices. He said he might be able to produce it for \$5.00 an ounce, or in small packets he might furnish 50 seeds for a dime. Now, I should be glad to pay a cent apiece for what seeds I need in order to get such plants as these I am describing. First, it is the earliest tomato I ever got hold of; second, it is almost of as good a shape as the well-known "Beauty" tomato; third, it is the most prolific of any thing I ever saw. Our tomatoes from these plants lay in heaps. They were literally piled up all around each one of the six plants. In the fourth place, it is about the hardiest tomato to stand frost and cold winds of any tomato I have ever had. And this, you know, is characteristic of hybrids, plants as well as animals. My hybrid Leghorn Buttercup chickens are certainly harder, more robust, and a little larger, than either parent. But the hybrids seldom if ever reproduce themselves exactly in the offspring. Poultrymen and seedsmen can explain this matter much better than I can. It has been discussed over and over again in regard to bees for half a century. The general agreement is, if I am correct, that the first cross between Italians and common bees will gather more honey than either of the parent races.

I persuaded friend Green to agree to furnish about 50 seeds of this hybrid tomato to the readers of GLEANINGS for ten cents. He will have the seed ready in a few days.

Of course the plant may be reproduced by cuttings instead of seeds; and I am planning now to raise a few nice plants from cuttings to carry with me when I go down to Florida in November.

THE NEW CELERY CULTURE.

A dozen years ago or more our good friend Greiner, who writes for our agricultural press, devised a new plan of growing celery in a back yard or garden, which he called the "new celery culture;" and he put out a book describing his new high-pressure gardening. We sold quite a few of them. Some people succeeded, while others, as usual, did not. But the book was well worth the 25 cents it cost.* It seems now that, after all these years, somebody has decided he could get some "dollars" by calling the idea something new. Read the following letter:

* The whole thing is now embodied, with ample illustrations, in Greiner's book, "Celery for Profit," which we have advertised and sold for many years for only 25 cents.

Mr. A. I. Root:—I am a short-term subscriber to GLEANINGS. I have a copy of your book, "What to Do and how to be Happy while Doing it." It was lent me by a neighbor. I read your articles in GLEANINGS under the head of High-pressure Gardening. I send you a clipping from *Suburban Life*. Do you know any thing of the book spoken of in the advertisement? Is it worth the price to a market gardener of limited means? It says \$50 from 5½ x 5½ yards, method simple, results sure. Do you think these statements are facts?

Gouverneur, N. Y., Aug. 4. W. G. BRAINARD.

Below is the advertisement our friend refers to:

NEW CELERY CULTURE; A LIVING FROM ONE-EIGHTH ACRE.

Nearly eleven hundred finest celery-plants may be easily grown on a rod square of land. At five cents per stalk, that means over \$50 from 5½ x 5½ yards. Two crops in one season. This new under-feed method grows extra-choice, crisp, and tender celery in eight weeks from planting. A fortune in your back lot. Method simple. Results sure. A boy can do it. Complete instructions, \$1.00. Free copies to Agricultural Colleges.

Montvale, Va.

MONTVALE FARMS.

As soon as I saw it I sent off a dollar; and what do you suppose I received? No book at all—just a single sheet of paper. It made me think of "The Natural Hen Incubator" that I have shown up several times. All there is on this single sheet of paper could easily be printed on two pages of GLEANINGS. You are simply to make a hot-bed and then put two loads of manure on a space 8 x 16 feet. This would be about the quantity of manure that market gardeners generally use for a hot-bed. Put a frame of boards on top of the manure and fill up with good rich soil. The author recommends poultry manure as one of the best things to make the soil rich. The plants are to be set out six inches each way. The bleaching is done by having the plants so close together (on very rich ground) that they bleach themselves, aided by tying up with a string. It is exactly the plan Greiner described in his book. Of course the ground is to be made very rich for this intensive cropping; and then you must keep it well watered if it does not rain. All this can be managed very well if one will take the time and pains. He says you can grow two crops of celery in one season; but I fail to see how two crops of celery are going to afford "a living from an eighth of an acre." You will notice there is no signature to the leaflet except the address, White Plume Celery Farm, Roanoke, Va.

I am going to submit the whole thing to the attention of the Postoffice Department.

SQUASH-BUGS AND—HOE-CAKES.

Dear Mr. Root:—I have just been reading your papers in GLEANINGS, and notice your article on moth-balls for squash-bugs, etc. I presume, of course, you have reference to the small striped beetle so destructive to young vines of squash, cucumber, etc. The remedy referred to may do the business all

right; and yet the one I wish to give you may go a little further toward reducing the high cost of living; besides, it is always on hand on the farm whenever wanted. It is as follows. Take an old bucket and fill it about one-fourth full of fresh cow manure. Fill with water, and stir. Apply direct to the plants. I generally apply by means of a bunch of tall weeds, which I take by the root ends, immerse the tops in the decoction, and shake over each hill. I have used nothing else for the last ten or fifteen years, and it has never failed to do the work to perfection. It is the smell that drives the bugs away.

As to Vice-president Marshall's hoe-cake to which you refer on another page, I think it is nothing more nor less than our corn bread, sometimes called hoe-cake from the fact that in earlier days the Southerners made a batter or dough, the main ingredient of which was Indian meal, which was spread on a hoe or similar instrument, and laid on an open fire to bake. This was called hoe-cake.

Berne, Ind., July 6.

M. BRENNEMAN.

Perhaps some of the friends may complain that our good friend Brenneman and myself are getting different things into rather close proximity; but you can stop a little and take breath after reading about the remedies for squash-bugs before you tackle hoe-cake. Yes, the remedy proposed will do the business. I have heard of it before, but had forgotten it. The only objection that we know of is that it is a rather disagreeable operation; but from the fact that it gives the squashes a fertilizer—that is, if you give them a good dose of the concoction, and at the same time it drives the bugs away—I think we can extend a vote of thanks to our good friend. Now for the other matter.

Very likely it is "corn bread" that Vice-president Marshall eats every day of his life. But where does he get it? Is such corn bread kept for sale by the bakers? If so, I have not seen it, and I generally make friends with the bakers wherever I am, and look over their stocks, especially the goods they furnish to "reduce the high cost of living." Can not somebody furnish us a recipe for making such bread as Vice-president Marshall eats "every day"? Corn meal is as cheap as common flour, and perhaps cheaper. Will friend B. kindly tell us how to make good wholesome bread out of golden corn?

THE DASHEEN, AND THE WORLD-WIDE DISTRIBUTION OF FOOD PLANTS RELATED TO IT.

The following, from our good friend Dr. E. F. Phillips, of the Bureau of Entomology, Washington, explains itself:

UNITED STATES DEPARTMENT OF AGRICULTURE.
Washington, D. C., July 29.

My Dear Mr. Root:—I am enclosing two quotations from Cook and Collins' Economic Plants of Porto Rico on "yautias," the Porto Rican name of the dasheen.

I saw a dasheen growing in a store window here to-day.

Sincerely yours,

E. F. PHILLIPS,

In Charge Bee Culture Investigations.

P. S.—Bulletin 6 of the Porto Rico Agricultural Experiment Station (Mayaguez, P. R.) is on yautias, or taniars, of Porto Rico. I think the Hawaiian station (Honolulu) also has one on taros as they are called there. E. F. P.

1903. Economic Plants of Porto Rico. U. S. National Herbarium. Vol. III., part 2, p. 264. *Xanthosoma*. Yautia.

Family Araceae.—In Porto Rico there are four kinds of taros, or "yautias," as they are there called. Three of them are species of *Xanthosoma*, a genus of aroids closely related to *Colocasia*, but having the leaves hastate—that is, the basal lobes are not connected behind the insertion of the stalk, as in *Colocasia*. The species of *Xanthosoma* are recognized as distinctively West Indian, and were cultivated by the Caribs when the Spaniards arrived; but, curiously enough, the taro is the only one which has retained a thoroughly native name. The *Xanthosomas* are known, respectively, as "yautia blanca," "yautia amarilla," and "yautia palma," while the taro is called "yautia malanga." *Colocasia esculenta*. Taro. Yauti malanga. Bleeding heart.

Family Araceae; the "taro" of Polynesia. Elsewhere about the Caribbean Sea the same plant has a most confusing variety of native names—"coco" in Jamaica; "eddo" in Barbados; "tannia" in Trinidad; "taya" in the French Islands; "oto" on the Isthmus of Panama, and "tisquisquis" Nicaragua. European travelers and residents are commonly not aware of the differences between these closely similar plants, and generally apply these names indiscriminately to both *Colocasia* and *Xanthosoma*, and some botanists have even failed to appreciate the differences.

The species of *Colocasia* can be distinguished from those of *Xanthosoma* by the petate leaves.

Mr. W. M. Armstrong, of Honolulu, states that he found the Porto Rican taro, or yautia, invariably inferior to the Hawaiian, the introduction of which he considers would be an important service for the agricultural population of Porto Rico. Stock should be secured from Hilo through the experiment-station authorities.

Mr. Armstrong also states that the Hawaiian taro has been found superior to that of Fiji and Samoa by Mr. Alexander, who has investigated the subject. Its wholesome and delicate quality recommend it to resident Americans, and many who have returned to California now import taro for household use.

Recently the Chinese have taken to raising another variety of taro, or taro-like plant, in California, particularly at Bakersfield. This is said to be propagated from tuberous lateral shoots, not like the taro in which the leafy cut-off ends are planted. Chinese taro is also imported to California from Canton and Hongkong. This is by some thought to be somewhat inferior to the Hawaiian, but the difference is not great.

Our readers will notice that the quotations are from a book put out in 1903; and probably considerable progress has been made in disseminating this vegetable, especially in California. If any of our readers can give us any additional information we should be glad to get it.

You will notice the statement that all of these plants are closely related to *Colocasia*; and when foliage plants were my hobby some years ago the varieties of *Colocasia*, especially the variegated ones, were an endless source of pleasure to me. But I did not succeed in making them grow, especially outdoors, as I am now succeeding with the dasheen.

Temperance

"CREATING AN APPETITE."

I want you to take a look at the picture of that boy on page 564 of our issue for August 1. May be you think our boys are not very often taught to drink. If so, look at the following, which I clip from the *American Advance*:

SCHOOL-CHILDREN DRUNK!

Yes, in our land of light and protection for the home!

Read the details in this bit of item from the daily press. It was printed at the bottom of an out-of-the-way column:

81 PUPILS GET DRUNK; PASSAIC SCHOOL REPORT SHOCKS OFFICIALS.

PASSAIC, N. J., July 13.—Mayor George N. Seger, of Passaic, received the annual report of Truant Officer Herman Weber yesterday. Casually he ran his eye down the list of absentees, the list of sick, until he came to a line near the bottom of the page. Then he leaped from his chair and rang the bell violently.

"Send for Mr. Weber at once to explain this," he fairly gasped. "I never heard of such a thing!"

The line of the report that had excited the mayor reads as follows: "Total number of school-children intoxicated during the year, 81."

Mr. Weber, when he appeared, explained that all these children had come to school, at one time or another, drowsy and inattentive, some of them boisterous and quarrelsome, and each case investigated had established the fact that they were under the influence of liquor.

The mayor has issued orders that in the future each case of intoxication among school-children shall be made the subject of a special report and a careful investigation. Among other facts to be noted are the nationality and social standing of the parents, and, if possible, whether the child was given the intoxicant at home.

Of course, we do not know how many pupils there were in that school; but during the year there were 81 that *got drunk*. Without question these children were taught to drink just that the greedy liquor-dealers might get their nickels. Notwithstanding such reports as this, the liquor power has got its hellish grasp so firmly on the affairs of our government that all the good people in all the whole wide world, up to the present time, have been totally unable to break its clutches on our administration.

GOD'S KINGDOM COMING: THE WAY IN WHICH WOMEN ARE VOTING IN ILLINOIS TO BANISH AND KEEP OUT THE SALOON.

We copy the following from the *Union Signal* because it shows in detail how the women went to work, and what they accomplished in one Illinois city:

ILLINOIS WOMEN VOTE ON THE SALOON PROPOSITION. ETTA ROOT EDWARDS.

Vice-president Illinois W. C. T. U.

The first test in Illinois of women's sentiment regarding saloons was made in Benton, July 22. Benton, a city of about 5000 people, is the county-seat of Franklin County. It has had no saloons for five years. This spring, under the commission form of government, a license ordinance was introduced.

The vote stood three for and three against. The mayor referred the matter to the people. So the ballot read, "Shall the ordinance for licensing dram-shops be passed?"

The Women's Christian Temperance Union assumed the responsibility of getting the women to the polls. Mrs. Mary Hart, wife of former County Judge Hart, was made chairman of the central committee. She chose one woman from each ward to act with her in polling the city. The local president, Mrs. Hudgins, then called for volunteers to make a house-to-house canvass, and fifty-six women responded. Each ward was divided into sections, and two women were assigned to each section. A day was decided upon for a whirlwind canvass, and practically every home in the city was visited that day. The canvassers took with them sample ballots from which they showed the women how to vote; some good literature, which they left in the home, and a notebook in which was recorded the name and address of each voter, how she would vote, and when to call for her. These facts were tabulated, and the names arranged alphabetically on separate sheets, ready for use on election day.

The day came. The committee was at the polls half an hour before the time for opening. The first woman who voted was Mrs. Margaret Martin, seventy-seven years old, and for fifty years a resident of Benton. Ten automobiles had been gratuitously placed at the disposal of the committee.

The chivalry of the splendid men of Benton can not be excelled. Ministers, lawyers, business men, city and county officials, clerks and judges, vied with each other in acts of courtesy and kindness.

What was the result? Four hundred and twenty-two women voted. Four hundred and eight of them voted against the saloon. The total vote was 836, and the dry majority was 526.

Judge Hart said, "I have been here for twenty-five years, and I have never seen things so quiet and orderly on election day."

Benton's sweeping victory has sent a thrill of confidence into the hearts of good people throughout this entire section.

There you have it, friends. If you are working and praying to have your town, county, or State dry, and to keep it dry, are you willing to take the time and trouble, to work as did those devoted women?

TAKING THE BABY TO THE POLLS TO VOTE; AND ALSO TAKING THE BABY WHEN A WOMAN IS CALLED ON TO SIT ON JURY.

We copy the following also, at length, from the *Union Signal*, because it foreshadows so well the "good time coming." Our readers will remember that I mentioned taking the babies to meeting in the Grand Traverse region in Michigan.

WHO WILL TAKE CARE OF THE BABY?

Mrs. Sena Hartzell, National Organizer and Lecturer

Once upon a time the question was asked with bated breath, "Who'll take care of the baby when the mother goes to vote?" That question has been answered and exemplified. If no other plan offers, she takes it to the polls with her. Now the question is, What would the mother of an infant do if she were called upon to serve on a jury? At Mitchell, Oregon, a village sixty miles from a railroad, nestling in a beautiful valley, surrounded by towering peaks, where is located a thriving W. C. T. U., the question was admirably answered.

Mitchell is located in what is known as dry territory. A certain man was suspected of illicit liquor-selling. He was arrested, tried before a jury of men, and found guiltless. Again he was arrested, and tried before a jury of men. After deliberating all night they failed to agree, and were dismissed at six.

A VERDICT IN TEN MINUTES.

The judge, now grown desperate, impaneled a jury of women. This jury heard the same evidence, from the same witnesses, before the same judge, with the same county attorney. They were out less than ten minutes when they brought in a verdict of guilty. Two of these women jurors had with them their babies. One took her baby into the box with her. The other, having three children, left the younger ones in the care of the eldest child, who was a girl, and able to look after the baby while her mother sat upon the jury.

As one woman said, "All she had to do was to sit there and behave herself just as though she was in meeting!" Two of these women jurors were mothers of men who served on the jury that could not find sufficient evidence to convict. I had the honor of being entertained at the home of the forewoman, Mrs. E. M. Campbell, an intelligent, well-rounded woman of seventy years. She said, "I never had an easier job. When we entered the room, I said, 'What do you say: is he guilty or not guilty?' and every woman answered, 'He is guilty.'"

THE MOJAVE DESERT "GONE DRY."

As a further evidence that God's kingdom is coming on earth as it is in heaven, we clip the following from the *Union Signal*:

For the first time in its history, Mojave Desert district, California, has gone dry, and all saloon licenses have been revoked.

After a hard-fought battle Pinellas County, Florida, has again outlawed the saloons.

On July 4 the Iowa daylight saloon bill went into effect. Saloons are closed now from 9 P.M. to 7 A.M.

Owing to a new law in Oregon regulating intrastate liquor shipments the Mount Hood Railroad Company has refused to carry shipments of liquor to Hood River Valley districts.

As a result of the Allison law passed by the recent Texas legislature, and in effect since July 1, dry sections of the State will be protected from shipments of liquor from any point in the State. Violations of this law are punishable with imprisonment.

Under the new South Dakota State law which went into effect July 1, limiting the number of saloons to one for each 600 population, Aberdeen reports that thirty-four saloonkeepers were unable to secure renewals of their licenses.

Under the recent liquor laws of Wisconsin, licenses for the sale of intoxicants on boats can not be granted. In discussing the question Attorney General Owen said: "I believe that a license can be granted only for a building that is stationary, and that a license can no more be granted to a boat on a lake than to a wagon that is movable."—*Union Signal*.

THE LIQUOR BUSINESS GOING OUT OF OUR CIVILIZATION.

We clip the following from the *Union Signal*. Read it, and see what you think of it; then see if the concluding sentence hits you anywhere. May God be praised that prohibition has not only struck our railroads and great manufacturing establishments, but that it has taken root, as indicat-

ed in the above, in the hearts of the newspaper advertising men of America.

A significant feature of the recent annual convention of the Associated Advertising Clubs of America, held in Baltimore, was their failure to patronize to any extent the saloons of the city. While it is not unusual during meetings of big social orders for the saloons to keep open all night, they were during this great convention not at all overworked during their regular hours; and, according to a writer in the *Christian Endeavor World*, so marked was the abstinence of the delegates that they were referred to as the "men white ribboners"—"another indication among the many," remarks that paper, "that the liquor business is going out of our civilization." This state of affairs was quite in keeping with the dignified character of the convention as a whole, the first business session being opened by prayer, and members of the convention filling various pulpits on the opening day, Sunday. The adoption of the word "Truth" as the motto of the association speaks well for the ethical standards of the periodicals represented. If the 2000 delegates live up to this motto it will result in the elimination of all liquor and other objectionable advertising from the pages of their papers. Every day brings news of additions to the list of periodicals whose editors and publishers will not soil their pages with advertisements of things that are injurious to their subscribers. The number would multiply with much greater rapidity if the men and women who read would hold up the hands of such publishers, and refuse to give their patronage to those who still maintain a partnership with the liquor interests in advertising their wares.

"BREATHES THERE A MAN WITH SOUL SO DEAD?" ETC.

I have had considerable to say (and, I hope, by way of encouragement) concerning the boys' corn-growing club. It has been estimated that the boys have not only taught their fathers how to grow far better crops than they ever did before, but I have somewhere seen it stated that the result of these corn-growing contests had brought millions of dollars into the State of Iowa. Now read the following which I clip from the *Cleveland Plain Dealer*:

Gov. Cox related one incident to the farmers at the recent meeting at Chardon. One chap, who had entered the contest last winter, wrote to Secretary Sandles saying he would be compelled to drop out and lose his chance, because his father had refused to allow him the use of an acre of ground or the time to prepare the land and cultivate the crop. Gov. Cox expressed astonishment that even one farmer in Ohio should be so short-sighted and pennyurious.

What was it we used to have in our readers?

Breathes there a man with soul so dead
Who never to himself hath said—

suppose we end it by saying, "My boys are not only of more importance than any crop on my farm, but of more value than the farm itself or any thing else in this world;" and yet here is one farmer in Ohio who would not give his boy an acre of ground and time enough to try his hand in growing a crop of corn under the instruction of an expert, even when it is free of charge and paid for by the State of Ohio.

Gleanings in Bee Culture

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NO. 18.

Editorial

SUGAR TO BE ON THE FREE LIST IN THREE YEARS.

JUST as we go to press, the Senate has passed the tariff bill under which there will be a reduction of 50 per cent in the duty on sugar, with the further provision that it will be placed on the free list in three years. The bill is yet to go to a conference between the two Houses, but it is not expected that any great change will be made. As we said before, we do not believe that free sugar is going to make cheaper honey. Honey has a flavor peculiar to itself; is easily digested, and belongs to a class by itself. It will, therefore, command its own price, just as it has always done, in the face of the fact that glucose syrups are sold from one-half to one-third the price of good extracted honey.

HONEY A CONCENTRATED FOOD.

THE following item from the *Farm Journal* appears to contain considerable truth:

POINTS ON HONEY AS FOOD.

Honey is one of the driest of human foods as it usually has less than 20 per cent of water. Beefsteak, of the most expensive kind, contains 65 per cent, and then there is some bone to be reckoned with. Some of our most expensive fruits and vegetables are nearly all water, 95 per cent, and some even more. This is a point that beekeepers can harp on a good deal. Anybody can easily see that between a pound of steak and a pound of honey at the same money, the advantage lies with the honey. Moreover, honey will keep indefinitely, whereas beefsteak deteriorates in a few hours. Actually, honey improves with age. Add to this the fact that honey is one of the very few predigested foods.—*The Farm Journal*.

Honey is a concentrated food. It is a predigested sweet, and, unlike cane sugars, it is easily assimilated. We have been informed that the British army furnish their soldiers with a considerable amount of cane sugar, because it has been ascertained that sugar in the right quantities is a builder of flesh and muscle. If that is true of sugar it certainly must be true of honey.

HONEY-CROP CONDITIONS; THE SEVERE DROUTH, AND ITS POSSIBLE EFFECT ON CLOVER FOR NEXT YEAR.

As the season goes on it is increasingly apparent that there was a big crop of clover honey in the north-middle Atlantic

States and in south-central Ontario. There has been, probably, a larger crop of clover honey produced this year than for many years back. The crop in the West, if we exclude California, has been about normal; but the severe drouth that has prevailed in some of the eastern States, and latterly through the central-middle States east of the Mississippi, has had a tendency to check the growth for next year. Some report that clover has been all killed out—so much so that they fear no amount of rain from now on will start the plants going. This is particularly so in New York where the season has been a failure and drouth most severe.

If the drouth has been general, it will have a tendency, of course, to stiffen prices on the 1913 product, as there will be some beekeepers who, rather than sell at low prices, will hold for another year. Of course comb honey will have to be sold this year; but as there is only a comparatively small amount of it, there will be no trouble in disposing of it at good prices.

Later.—The drouth has been broken in Kansas, Oklahoma, and Missouri. Refreshing rains have come in the East to some extent. Clover has a wonderful recuperative power, and it is surprising what a few rains will do.

A VISIT FROM A KENTUCKY BEEKEEPER.

GLEANINGS has recently been favored by a visit from Mr. Wallace K. Rheese, of Winchester, Ky. Mr. Rheese is the son of John R. Rheese, who invented the LaRheese bee-escape, which was sold quite extensively for a few years.

Mr. Rheese is a young man full of enthusiasm, who intends to make beekeeping his profession. He sold over \$1100 worth of honey this year from 55 colonies, spring count, and increased to 100 colonies, rearing his own queens from choice stock. In this connection we wish to refer to a statement that has been made, that the extensive producers of honey are nearly all men well along in years, the young men (the sons of these producers) going into other business. If this were true, it would look as though beekeeping were not very inviting

to the younger men. However, we have direct proof that such is not the case, in a good many instances at least, for we are personally acquainted with a good many young men who are going to be the extensive producers a few years hence—young men who are following in their fathers' footsteps.

The glare and glamour of the city draw many of the boys, and some of the best boys too, from the farms, fruit-ranches, poultry-farms, apiaries, etc.; but the introduction of modern improvements and labor-saving devices is going to correct in a short time this abnormal condition. Beekeepers as a class are just as progressive as farmers or fruit-growers, if not more so; and, if we are not mistaken, we believe the proportion of young men who are choosing beekeeping as an occupation or profession is larger than it ever was before.

**"DOT MAKES NO NEFFER MIND;" THE HARD-
LUCK BEEKEEPERS AND FARMERS.**

THE world is full of careless, happy-go-lucky people. There are some, it has been well said, who worry themselves into their graves over little things, and others who go to the poorhouse because they never worry about any thing. As illustrative of the latter class of people, Inspector Morris tells a good story; for at one time in his life he worked in a big shop where there were laborers, mechanics, pattern-makers, and artisans of all kinds. It seems there was an odd "character" in that shop by the name of Hans Drescher. Well, Hans went one day to Bill Huggins, the pattern-maker. "Say, Bill, vill you lent me your trawing-knife? I vant to do a leetle vork mit 'im."

It was contrary to Bill's practice to lend his tools; but seeing it was Hans he turned the tool over to him with the remark, "Be careful, Hans, and do not spoil that nice tool."

"All ride, Bill. I takes goot care mit 'im."

A few hours afterward, Hans came back. "Bill, I made a nick out of dot knife; but dot makes no neffer mind."

The world is full of "dot makes no neffer mind" people. They borrow your tools for which you have paid good money. Likely as not they don't bring them back; or if they do, they return them practically worthless. But the tool-borrowers are not the only offenders. There is a class of "dot makes no neffer mind" who never get anywhere, and wonder why. They are their own worst enemies. Among them are some beekeepers.

They allow their bees to get to robbing,

but "dot makes no neffer mind," because "The other bees get the honey." There are some who leave their old combs exposed out in the open, making it possible to scatter bee disease if they come from an infected hive; but that "makes no neffer mind." They know nothing about bee disease, and care less. Others leave their nice sections on the hive too long. They become daubed with bee-glue, but "dot makes no neffer mind," because the honey is all there, forgetting that they have lost several cents a pound on what perhaps would have been otherwise fancy honey. There are others who never go down into their brood-nest in the spring to replace a failing queen or to strengthen a weak colony, but "dot makes no neffer mind," because the other colonies will get all the honey just the same. There are still others who do not look into the hive in the fall to see if they are in proper condition and have sufficient stores to go into winter quarters; but "dot makes no neffer mind."

Foul-brood inspectors often come across farmer beekeepers of the "neffer mind" class. Their colonies are in all kinds of hives from a nail-keg to a modern dovetailed hive; but in the latter, more than likely, the frames have never been removed, and the combs are built crosswise. Their farm wagons are left out in the open; barn doors are off their hinges; barnyard is reeking with liquid manure; cows stand up to their knees in it. Their fences are tumbled down, and the chickens roost all over the place. They don't seem to see that every day they are losing dollars and dollars. No wonder they have hard luck.

SOME NEW BULLETINS ON BEES.

DURING the last few months there have been some new bulletins on bees. Bulletin No. 49, from the Department of Agriculture, Albany, N. Y., is one of the best and most elaborate that has ever been printed. In addition it is beautifully illustrated with numerous fine engravings. It is written by no less an authority than W. D. Wright, one of the foul-brood inspectors of New York, and one of the best beekeepers in that State. The instructions are safe and orthodox so far as we have been able to see from a cursory examination. Particular attention is paid to the subject of bee diseases. This is followed by copies of the laws relating to bee disease and the spraying of fruit-trees. A large number of beautiful half-tone engravings appear, winding up with splendid illustrations of pickled brood and European foul brood. These are followed by a list of valuable articles that have been

read at the various conventions of the State associations.

EUROPEAN FOUL BROOD AND HOW PURE ITALIANS HASTEN ITS ELIMINATION.

One paper by the author, Mr. Wright, on the subject of Italian bees as a factor in the extermination of European foul brood, is particularly noteworthy. We quote:

When we consider that there is no other race or variety of bees that is so nearly exempt or immune to the ravages of this disease as the pure Italian, and that large or small apiaries of this race often pass through an epidemic of European foul brood of several years' duration almost unscathed, and furnish their owners a good profit at the same time; while, contrariwise, all black and hybrid bees in the vicinity suffer heavy losses, and frequently total annihilation, we begin to realize somewhat the important position held by these bees. There are numerous remedies and treatments recommended for the relief and cure of this malady; but where is there one that will compare with Italianization as a preventive measure before the colony has been exposed, or after treatment, to prevent reinfection?

I consider this item, Italianization, of more importance than any other one, and, perhaps, than all others combined, in the fight against this arch enemy of beekeepers.

In view of the foregoing facts, it is a pity we have no legislation making Italianization of all bees, where necessary for protection, compulsory. However, I presume such a law would be considered unconstitutional.

This statement, coming from an expert on European foul brood, is in harmony with the statement made by several other authorities. A word to the wise will be sufficient.

This bulletin can probably be obtained by New York beekeepers by applying to the Department of Agriculture, Albany, N. Y. Every York Stater should have it. It would probably cost residents of other States 10 or 25 cents, and it would be well worth the latter figure.

Bulletin No. 9, Beekeeping in Tennessee, from the State Board of Entomology, by G. M. Bentley, is another bulletin as large or larger, so far as the amount of matter is concerned. Numerous illustrations, most of them original, show the different stages in the various manipulations in the handling of bees. It is, in fact, a very complete treatise on the subject of handling bee diseases.

It gives a list of honey sources in that State, the present and future possibilities within the State, and then it takes up the subject of apiary inspection, and the report of the Apicultural Inspector, Dr. J. F. Ward. The closing pages are devoted to the relation of beekeeping to horticulture, by Dr. Ward. This bulletin can doubtless be obtained by Tennessee beekeepers by applying to the Tennessee State Board of Entomology, Knoxville, Tenn.

Bulletin No. 11 is devoted to the subject of beekeeping in Iowa, by Mr. Frank C.

Pellett, foul-brood Inspector of that State. This, though not nearly as large as the two other bulletins mentioned, is very complete, in that a beginner by following its instructions could make a nice start in the business. The subject of bee diseases, with a copy of the law, is given on the last page or two. A copy of this bulletin can doubtless be obtained by applying to the Iowa State College of Agriculture, located at Ames, Iowa.

In this connection it is proper to state that this college is one of the very best in the United States. It has a splendid equipment of new buildings; and we have been assured that its president is desirous of having beekeeping taught in the institution. Mr. Pellett is doing much for the cause of beekeeping in his State. While he is handicapped by a lack of funds to carry on properly the work of inspection, yet there is every reason to believe that the time will soon come when Iowa will take its rank with other States that recognize the seriousness of foul brood.

OUR QUEEN-MATING YARD AT THE BASSWOOD GROVE; BABY NUCLEI VS. THOSE USING FULL-SIZED LANGSTROTH FRAMES.

THE cover design for this issue shows a portion of our basswood grove that was set out by A. I. Root over forty years ago, or just about the time his enthusiasm for bees was at its height. He had secured a crop of basswood honey from his 50 colonies that set him wild. Observing that a single basswood tree would yield more nectar per square foot of ground than any other tree or plant north of the Ohio River, he conceived the idea of buying a piece of land and setting it out to basswoods. He purchased twelve acres, and during the next year he set out some 4000 basswoods. Many of them were not more than a foot high, while others were perhaps two or three feet. Well does the writer remember helping to set out those trees. A big Dutchman dug the holes, while we sprinkled in bonedust. We gave the young trees the right kind of plant-food at the very start. The trees grew, and along with them some side shoots. Neighbor H. told A. I. R. to let those shoots grow, as they would furnish more blossoms; but that was a mistake, because they ultimately killed the old tree, and left a lot of small trees all from one root, as will be seen in the picture on the cover. The ground was never thoroughly underdrained, and the trees have never, except in one or two cases, yielded a large crop of honey. One of these cases was during the year 1912.

Young basswood trees, in order to do well, should be grown in connection with

other forest trees; that is to say, the trees should be shaded by larger ones until they get their growth.

Another thing we observed was that nearly every year the outside row of trees would be in bloom while the inner ones showed no blossoms. This would indicate that perhaps the sunlight does not get in to the inner trees as it should. But since draining-ditches have been put in, and the underbrush cut out, basswood honey has been much more in evidence than it was formerly.

Another glance at the cover picture shows long rows of baby hives under the trees. These are our twin mating nuclei, some 200 in all, or 400 separate nuclei. In addition, further down the long rows there are some full-sized Langstroth nuclei in eight-frame hives, two to a hive. This brings the total number up to 450 nuclei for the mating queens at this one yard. In the background, not shown, are some 60 colonies for cell-building and honey-production, an artesian well, two small buildings for a workshop and the storage of supplies.

This whole layout, under the charge of Mr. Mel Pritchard and his son, is devoted entirely to the rearing of queen-bees. When he has a favorable honey year he will produce surplus honey as he did last year and this. In an average year the honey is converted into bees, which in turn are devoted to cell-building and the filling of orders for pound packages and nuclei. This yard will turn out this season about 3000 queens, and, besides that, 5000 lbs. of extracted honey in addition to about 2000 lbs. left in the hives for winter. This year the flow was so strong that even the baby hives were jammed with honey—so much so that the queens were “honey-bound,” and some combs had to be removed, substituting the empty ones.

We have used the twin nuclei at these yards for a number of years. At the beginning of the season we dip up about a dipperful of bees, say a quarter of a pound, and put it into one of the compartments of a twin hive. Another dipperful is put in the other side, making the twin completely peopled except the queen. After all the hives are filled cells or virgins are given, and at the proper age the young mother-to-be takes her flight. As soon as she begins to lay, she is taken out and another cell or virgin is put in her place. When there is a great surplus of virgins we sometimes “prestage,” as already explained in these columns—that is to say, there will be one queen caged while the other is loose waiting to take her flight. As soon as she begins laying, the caged queen is released because she is already introduced. This plan of caging enables us to increase the output

during the mating time in one hive, and at the same time makes it possible to take care of the surplus of virgins. At the close of the season, any bees that are left in the nuclei are dumped into one large box and made up into colonies. While these aggregations of bees do not make as good a colony as the regular, they are worth saving.

The covers of the baby hives are painted red, white, and blue, in order that the queens may more readily locate their entrances on returning from their wedding-flights. To assist further, the entrances point in different directions. For example, the first baby hive may have entrances pointing east and west; the next one north and south, and so on, because the entrances of each hive are in opposite directions. Well, the combined effect of red, white, and blue hives in straight rows, the green grass beneath, and the foliage of the basswoods, with every now and then glimpses of the blue sky above, makes a general combination that is inviting. Visitors always remark about it. It can be plainly seen from the street cars as they whizz by. We take visitors to this yard because the bees are very easy to handle, requiring neither smoke nor veil. It is well known that a little bunch of bees is less inclined to be “obstreperous” than a large-sized nucleus or yet a strong and powerful colony. Mr. Pritchard, however, uses smoke as a matter of convenience to facilitate his work. He never finds it necessary to use a veil. If the entrances are contracted, there will be little or no trouble from robbing. But it is an advantage to have the big colonies away from the little ones, and you will find them in the extreme background out of sight.

The question may arise, “Which is the better—the twin baby hives or the full-sized Langstroth?” That depends. For general purposes the large hives are better. They take a little more time, however, to manipulate, and from four to five times as many bees. Moreover, these big nuclei are very handy for filling orders for one-pound packages and nuclei for shipment.

Our Mr. Wardell sees no particular advantage in baby hives. They cost considerable to start in the spring, because they must be *started every season*. In early spring 200 nuclei will take 100 to 150 lbs. of bees. These, taken from strong colonies in the spring, so sap their strength that they are not worth much for honey. Two or three pounds of bees taken out of a colony makes it necessary to remove the brood and replace it in other hives that may not be able to take care of it to advantage, for the simple reason that they already have all the brood they can take care of.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

"EXTRACTED honey will be much more wholesome to use than sugar." That's what T. B. Terry says in *The Practical Farmer* when speaking of sweetening oatmeal. Terry has been slow to recognize the value of honey, but is not likely to take any backward step. That pronouncement of his will do a lot of good.

A KANSAS reader says he has more trouble introducing ripe queen-cells than queens, and asks the best way to introduce them. The trouble comes almost surely from introducing cells too soon after removing the queen, before the bees are yet conscious of needing either queen or cell. Wait a day after removing the queen, then introduce any way you like. You may make a safe thing of introduction at the time the queen is removed by using a West cell-protector. Or you can introduce it in a cage the same as a queen. This last has the advantage that the bees are slow about tearing down the cell, so you can see whether the queen has hatched or not. When not protected, the bees are likely to remove all traces of the cell, so you can't tell whether the queen hatched or the bees destroyed cell and all.

"If a colony, slightly affected with foul brood, should cast a swarm, would the swarm, if placed on new frames and new hive, be liable to the disease if not exposed afterward?"—D. W. H. I don't know. My guess would be that it would be safe 99 times in 100 with European foul brood, and not quite so safe with American foul brood. [The base of the cure for foul brood, both European and American, is putting the bees in a clean hive. A swarm makes use of this principle in that it leaves behind it its combs, and usually enters clean new quarters. Again, it is generally understood that swarms do not carry foul brood. Putting these two facts together it would seem that Dr. Miller's statement could be made a good deal stronger. While there would not be much danger of European foul brood following, there would be no danger of the American type showing up.—ED.]

I DON'T believe alfalfa-growers can be persuaded to delay cutting till after alfalfa is in bloom, and I don't believe they ought. Much alfalfa is now grown here, and we're well up in alfalfa lore. The old rule was to cut when one-tenth was in bloom. Now the more intelligent rule is to cut as soon as the new growth starts at the base of the stalk. If cut later the new growth will be up in the way of the sickle, and the next crop

injured, and at this time not many blossoms are out. But alfalfa is no good for bees here anyhow. [Has it been proven beyond doubt that there is any advantage in cutting alfalfa before it comes into bloom? Many ranchmen apparently believe that the early cutting furnishes better hay. Perhaps so; but does it furnish a greater quantity of nutriment to stock? In other words, will an early-cut hay that has not reached its full growth and development yield more beef and pork than alfalfa cut after it comes into bloom? If we mistake not, there is a disagreement among authorities, with the odds rather in favor of the early cutting. But the pendulum has been swinging the other way, toward a later cutting. We hope so, as this will mean more honey, and probably more hay. See what Mr. Higgins says in the Heads of Grain department, in this issue.—ED.]

A BIG jump has been made in parcel post by the postmaster-general by making the rate within 150 miles a cent a pound plus 4 cents, with an increase in weight-limit from 11 to 20 pounds. Then the c. o. d. feature is a good thing. But the insurance is not what it ought to be if we are to ship honey by parcel post, and I don't see why honey shouldn't be thus shipped in this country as well as across the ocean. May be not yet, but after a while. Well, you can insure a package; and if it is lost you can recover value. But if you ship a case of honey and insure it, and it's smashed in transit, and the dauby remains are delivered, not a cent of loss can be recovered, because the thing was not a total loss. [At present we do not think it would be advisable to ship either comb or extracted honey by parcel post. See experience of Mr. Moody elsewhere. So far the results have shown that any fragile article is likely to receive pretty rough treatment in the parcel-post mail-bags. Unfortunately, almost every thing is being sent in this way, whether fragile or not. A heavy package will be bumped against a light and fragile one, with the result that the latter will be smashed into smithereens, if, indeed, it ever reaches the consignee. We see no reason why comb and extracted honey should not share a similar fate, damaging every thing else in the mail-bag. Parcel post has been a great boon to the people of the country. If we give Uncle Sam, or, rather, the Postmaster-General, a little more time he will probably be able to eliminate some of these breakages.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Mr. Chadwick makes a good point when he says, "The time is coming in this land of ours when more men must be producers, and fewer live on the work of those who do produce."

* * *

We hear occasionally of a bee-sting that struck a nerve or a vein, and consequently was very painful. Perhaps! But I have come to think that there is a great difference in the virulence of the poison of different bees. I sometimes receive a sting that seems almost inert, and the poison as harmless as so much water; and, again, I receive a sting causing unusual pain. The sting of a young bee seems much less severe than that from older ones.

* * *

I believe it was Louis Scholl who, some time ago, said that it is better for the specialist to have his yards of bees some distance apart. Then if there was a failure in one section he might get a crop in another. The present season in this section has seemed to verify the wisdom of such advice. Where some of our yards were located, and where we usually get fair crops, we shall not secure enough honey to winter the bees, while another yard, twelve or fifteen miles distant, where the drouth was not so severe, will give a good yield.

* * *

"There is that scattereth, and yet increaseth even more; and there is that withholdeth more than is meet, but it tendeth only to want." This is as true to-day as when first written some three thousand years ago. Especially is it true of beekeepers. How many have we seen that made a careful investment in bees, improved hives, sections, smoker, and beekeeping literature, that have reaped ten—yes, thirty, sixty, and even a hundred per cent on their investment, while others who thought they could not afford good hives, a smoker, nor a bee journal, have found it tended only to want and poverty!

* * *

It is nearly seventy years since I stood beside the gentle "schoolmarm" to learn my letters, and I repeated them one after another as she pointed them out with her wonderful pencil or more wonderful pen-knife, little thinking that some day I would be teaching the alphabet of beekeeping. And as I hold up a comb and point out the eggs and young and sealed larvæ, the work-

er and drone brood, and show the difference between healthy and sick or dead brood, and hear the exclamations of surprise from those who have kept bees for many years, I am astonished at their ignorance. An inspector must teach as well as inspect if he would have his work endure.

* * *

Mr. Jay W. Gee has an enlightening article on p. 375, June 1, on the shipping of fragile articles, and he speaks from experience in actually handling them. The fact to the care with which they are packed is to the care with which they are packed was a new idea, and yet it seems reasonable it should be so. That a few sections placed in a case of corrugated paper, and fitted nicely into a basket with handle, should go safely, is not at all surprising. I am of the opinion that, if all our shipping cases of honey had a handle they would go far more safely than at present. Mr. C. B. Palmer, on p. 450, July 1, calls attention to the use of a candy-pail for shipping honey. He attributes his success to the fact that the pail is not set down flat with a slam, but strikes first on one edge and goes down gently; but I believe the handle has more to do with it than he thinks. I fear if the handle were removed the pail would not prove of so great value as a shipping case for honey.

* * *

How far will bees go in search of nectar? and how many bees can be kept in one place without overstocking? are questions that have never been answered positively, and I believe never will be, for it all depends on circumstances. Mr. Harbison, of Southern California, told me many years ago that he found his bees working on flowers fifteen miles from home, although not very freely. The past spring it seemed doubtful if bees would go more than half a mile from their hives. The weather was so cool and cloudy about here that, where many colonies were kept in one location, they had to be fed to prevent starvation. A few colonies in a place during dandelion bloom would fill their hives, and some of them would prepare to swarm, while colonies in large yards could gather but little, as they could not go far from their hives, and the nectar was soon exhausted. On the other hand, during clover bloom there seems to be but little difference between large and small yards, as the weather is then mild, and bees can fly much further.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

On a recent trip to the San Bernardino Mountains I made a special effort to gain some knowledge of bee life in that region, and hope to submit an article a little later on my observations, illustrated with some pictures made by my own camera.

* * *

I have just made my first experiment in feeding thin syrup to prevent robbing while working with the bees, and I am not altogether satisfied with the result. It did not check robbing altogether, and I had one colony nearly cleaned out while my work was in progress. Later I tried wheeling the hives into the honey-house while at work with them, and then replacing them on the old stand. This plan proved very satisfactory.

* * *

The theory that alfalfa, in those parts of the State in range of the ocean winds, does not produce honey, is thoroughly exploded so far as my mind is concerned, owing to personal observation. A few weeks ago I was passing within half a mile of a field that was blooming nicely. I left my rig and walked over. I not only found bees, but great quantities of them, with every indication that they were getting honey at a very fair rate.

* * *

The most distressing feature of the season to me is the fact that my hives are now several pounds lighter in stores than they were two months ago, which means that colonies with a fair supply of stores then will have to be fed liberally by spring, and the weaker ones watched carefully to get them through. The stronger and better-supplied colonies will be able to pull through without much help. We can not afford to lose even the weaker ones, for it very often happens that we get some of our best honey-flows following these extremely dry seasons. Those are the seasons when the weak colonies soon come to the front and make big returns.

* * *

The skunks are again making inroads on my supply of bees that is already too low. I have never seen them quite so bad as at the present time, and the bees are so cross from their continual annoyance that the mere brushing past the hives brings out a stream of them to attack the intruder. The crosser colonies seem to fare the worst, due, very likely, to the fact that they are more easily brought out for an attack than

those of a more mild temper, and of course that is just what the skunks are after—the more that come out, the quicker they can finish their meal. I am again using strychnine to destroy them, but the process is slow, as there seems to be no end to the number that are harbored in the rocks near by. I have never been able to figure out why they are so much worse at this time of the year than at any other time.

* * *

The fight that has been waged against our old friend in the bee business, whom we know familiarly as Prof. Cook, now State Horticultural Commissioner, culminated last week in a hearing of the various charges before Gov. Johnson; and, if we are to believe the press reports, the charges fell flat for want of proof to sustain them. One thing that impressed me more than any other in the defense of Prof. Cook was that the records of his office were used in his defense, which seems to me to be about the best defense a man could have if his office has been properly conducted, as must have been the case here or they never would have been used for defense. It will be remembered that the fight on Cook *started* when he discharged the chief deputy quarantine inspector, and was *augmented* by the discharge of another of the official family some time later. The continual howl by certain fruit-men and fruit-papers brought about the hearing before our Governor. I have had very little sympathy for it all, because it was sprung before Cook had had sufficient time to prove himself efficient or otherwise. One fruit-journal wrote me taking exceptions to my defense of Cook when the fight was first begun; but now that he has been exonerated, and even those who led the case against him have admitted that they made a poor showing, my first opinion of the matter is confirmed. One thing is quite sure—the fruit-men will from now on know that A. J. Cook is the State Horticultural Commissioner and is square in the saddle. It seems to me that it is “up to” the fruit-men to get in and help now, and drop the policy of obstruction, for it must be remembered that some of the best fruit-men of the State were defending Mr. Cook. Governor Johnson said in effect regarding the dismissal of men from the commissioner's office, that it was no care of his who Cook discharged—that it was the efficiency of the work of the commission that most concerned him.

Beekkeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

LOCATING THE HIVES IN AN APIARY.

Hundreds of pictures of apiaries have been presented in the bee-journals and other publications from time to time. The writer has always found a certain amount of interest in studying them, there being quite a difference in the make-up of apiaries of various owners. In other respects they resemble each other very much—for example, in the placing of the hives. Has it not occurred to the readers that the great majority of apiaries are arranged with the hives placed either in rows or sometimes in squares, but with every hive a certain distance from its next neighbor? Are not the most of the hives placed so that every hive looks very much like the next hive or any other hive in the entire apiary? In many instances this "monotony" is broken only by the unfortunate(?) presence of such obstacles as shrubbery, trees, buildings, etc.

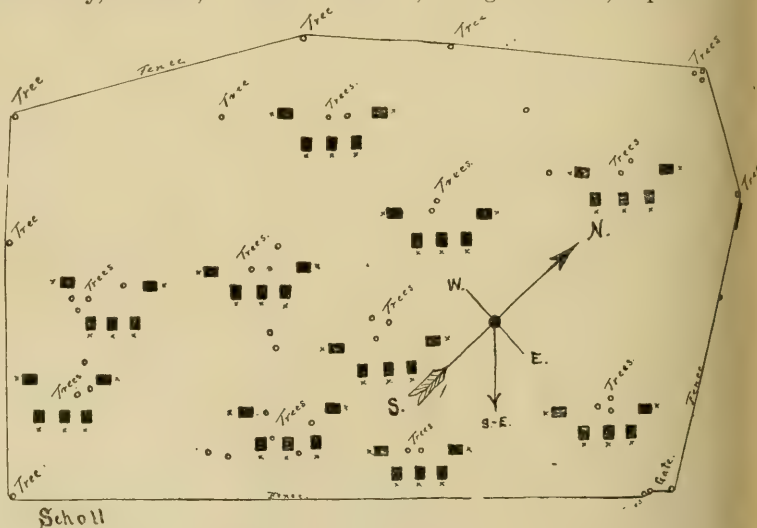
Such arrangements have their objections. The worst of these is in the matter of queens entering the wrong hives and being destroyed by the strange colony entered. This is the common cause of many colonies becoming queenless, especially after honey harvest. The apiarist can not account for this, as there seems to be no special reason why so many of his colonies should be found with missing queens. The trouble may, however, be attributed to the fact that many queens are superseded after the honey harvest; and the queens going out to mate return to the wrong hive because there is too great a similarity between the different hives adjoining their own. This is also true during the swarming season—in fact, at all times of the year when queens are likely to come out to mate.

Another disadvantage is that such an arrangement requires a lot of room unless the hives are placed close together. The closer together, the worse the trouble, however. The better way is to place the hives in pairs. Even groups of threes are better. A queen coming out of any hive in such a group will

take notice of the way her own hive is located in relation to the next hives, either to one side or the other, as the case may be; and when they return they will be less likely to go into the wrong hive.

To remedy the faults of an apiary arranged either in straight rows, exact squares, or on the hexagonal system, the colonies should be so shifted about until the entire yard is arranged in groups of two or three hives. Long rows of hives can easily be treated by simply moving every other two hives closer together, when space permits of this being done. If they are too close together already, the best step to take is to remove one hive from between every two hives in the row. That will leave the remaining hives in pairs, while the removed hives can be arranged in new rows.

The drawing shows an out-apiary fenced off, the wires stretched from tree to tree as indicated. There is room to place ten groups of five hives under a like number of trees or clumps of trees in the enclosure. The hives are located so that the greater number of them face southeast. By close observation it will be found that three hives facing this way are placed in a row "in front" of the trees. Another hive, facing northeast, is placed slightly in the rear to the right, while a fifth hive, facing southwest, is plac-



ed in a like position just opposite. Enough space is left between the backs of the hives and the trees to enable free passage and sufficient room for working over them.

[Half-tone engravings illustrating this plan will appear in the next issue.—Ed.]

Conversations with Doolittle

At Borodino, New York.

HONEY—HOW MADE.

"How do bees make honey? Is the nectar in the flowers honey? We know that the bees gather the nectar, but is that all there is to it? An old beekeeper told me that bees make honey. I denied it by telling him that bees gather honey."

Honey is produced by bees from nectar, and nectar is only a secretion of certain floral organs of plants. Bees will not gather any thing else if they can get nectar in paying quantities (unless their sense is perverted by robbing) as nectar is their natural food. This shows how they appreciate flavor. I know bees will gather such substances as fruit juice, sap from maple trees, or other plant wounds, aphid discharges, sugar syrup, etc., but such as these can hardly come under the term real honey. Possibly, if there is such a thing as honeydew this might be entitled to the name of honey after being stored and capped over by the bees; but, if I am correct, this, as well as such substances as those named above, lack in flavor, and could hardly be classed as good floral honey. Little honey would be eaten if it were not for its flavor, for the same amount of nutriment could be more cheaply secured by buying sugar and making it into a syrup of the consistency of honey. Flavor carries an important item in the economy of nature; and so important do we consider it that we add it to our food as we desire. Does not the flavor of ice-cream give it the delightful taste which causes us to be so eager for it? The flavor stimulates the appetite, and very likely aids in digestion. Of what worth would we consider the multitude of good things which we now enjoy when eating if all of them were deprived of flavor? Honey gets its value and character largely from its flavor, and its flavor is mainly derived from principles contained in the nectar. Each kind takes its distinctive flavor from flowers, each kind of flower having its distinctive source. I have been told that the honey takes its flavor from the secretions of the bees; but if this were true, what becomes of the wide difference in flavor of honey from the nectar of different trees and plants? Wonderful indeed would be the power of the bees if they could give such difference as is seen between the mild basswood honey and the rank buckwheat.

Honey is a rich, nutritious food. Its nutriment comes from the sugar it contains. Properly speaking bees do not gather *honey* and store it in their combs, but they gather the *nectar* of flowers, and through manipu-

lation and evaporation change it to honey. Honey is the prepared food for the colony, stored away for their future use. They not only manipulate the nectar, doubtless adding some of their secretions to it, but they generate more or less of the heat necessary for the changing of the nectar into honey. Bees possess a wonderful faculty for generating heat. When needed, they can bring the temperature inside the cluster from 80 to 95 degrees F. when it is down to zero in the open air. Of course, nothing of this kind occurs at times of nectar-gathering; but when nearly or quite a freezing temperature occurs during a night after a good flow of nectar from fruit-bloom, no lowering of the temperature inside will be noticed unless this freezing temperature is long continued. When the nectar is first gathered by the bees it usually contains an excess of moisture that has to be removed before it can become honey. The heat within the hive and cluster causes the moisture to evaporate, and the warm air of the hive to absorb it. To drive this moisture-laden air out of the hive the bees rapidly vibrate their wings. New air rushes in to supply its place. This goes through the same course of being warmed, circulated, moisture-laden, and finally driven out at the entrance. Many times have I seen water running in front on the alighting-board on a cool morning after a good flow of nectar.

Then all nectar is manipulated by the bees taking it in its raw state into the honey-sac and forcing it out into the mouth parts, drawing it back into the sac again; then forcing it out again, and so on until it becomes honey of sufficient density for capping over. By this operation, besides the evaporation of moisture, sufficient secretions of the bees are added and mixed with the nectar to make it honey when properly thickened. These secretions are probably needed to hinder fermentation and decomposition of the nectar. They also give a change in flavor, so that the honey does not have the same flavor as the perfume from the flowers from which it is gathered, nor the smell of the raw nectar when first brought in. Take buckwheat for instance. The aroma from a field when in full bloom, as it is wafted to our nostrils by a gentle breeze, is very inviting and lovely. But at nightfall, after a day of heavy gathering in a large apiary, no carrion could be more offensive to one who knows not the source from which it came. But after the bees have changed this raw nectar into thoroughly ripened honey this bad smell is all gone.

General Correspondence

ECONOMY IN RAISING QUEENS

Saving all the Brood from the Old Queen while the New One is being Reared

BY WILLIAM LOSSING

If there is a honey-flow in the locality, any beekeeper can secure a "bouncer" by complying with a few simple rules for raising queens, taking into consideration quality of queens and the least expenditure for time. My plan is applicable to home yards as well as to out-yards, and I have demonstrated its practicability beyond a doubt.

First divide a two-story hive, using an extra bottom board for the purpose. Select all the sealed brood, adhering bees and queen, place them in the upper story, leaving the eggs and larvæ in the lower story. There will now be perhaps four frames of brood in each story. Many workers will return to the old entrance, while enough will remain with the old queen to keep the brood from chilling, especially with the assistance of the heat from the lower story. As fast as the brood hatches, the queen will quickly deposit eggs in the vacant cells, and by so doing nearly the full benefit of the old queen is retained. At the same time the eggs and larvæ are being cared for by the bees in the lower story which are also building queen-cells.

We will suppose that we are at an out-yard fifteen miles from home, where honey is coming in, drones flying, and preparations are being made for swarming. We will go through the whole yard as above outlined, taking three days, say, for one hundred colonies. All yearling queens are in the upper stories, and nearly all the fresh brood and eggs are in the lower story. (Date each day's work.) In eight or ten days we remove all queen-cells but one, that being the best one in each hive. Perhaps ten per cent of the colonies are poor cell-builders, and in that case we destroy all of them and insert a good cell from another colony. The work is now done for the next fifteen days.

On returning, use very little smoke at the entrance of both upper and lower stories; remove the upper story; raise the quilt from the lower story; and if a young queen is laying the bees will be seen in a whirling motion directly over where she happens to be at that particular time. This sign is visible for only an instant, and practiced eyes will locate the queen immediately.

About five per cent of the young queens are lost in mating. When this occurs, on

lifting the quilt the bees often commence to hum very loudly, indicating that their queen is lost. (This sign fails occasionally.) If the bees are queenless, draw off two combs of fresh brood and bees (not the queen) from the upper story, changing combs with the lower story. After going through the whole yard we will say that there are six queens lost. In each of the six colonies two combs of fresh brood and eggs have been supplied.

Return to this yard in ten days, start at number one, and go straight through the whole yard, exchanging two combs of the ripest brood that each old queen has for two empty combs from the lower story minus the bees from each. After reducing the old queen again, ten days after this the colony with the young queen below will be strong enough for supers. When this time comes, do not delay, but put a super on and put the upper story that contains the old queen on top of it.

Keep drawing the ripest brood from the colony containing the old queen on top from time to time till within twenty days of the honey-flow. Now pinch the old queen's head; cage the young queen, and unite the bees. In due time release the young queen. All the bees and eggs the old queen produced have been saved, and there is a prolific young queen in the hive that will not swarm on the slightest provocation as an old queen will, nor fail during a long honey-flow.

Phoenix, Ariz.

[This plan requires a locality where there is quite a long period of warm weather before the main honey-flow.—ED.]

ENGLISH SPARROWS AS ENEMIES OF BEES

BY A. J. WRIGHT.

In the list of enemies to bees are toads, snakes, dragonflies, bee-birds, skunks, moths, worms, and domestic fowls. An experience that I had two years ago convinced me that the list is clearly incomplete. At the time mentioned I had a large queen order on hand, and began early in the season to raise queens in order to fill it. I had good success in getting a nice lot of virgins hatched and in the nucleus boxes; but when they took their mating flight at least 75 per cent failed to return. Another lot of virgins met the same fate. I succeeded in filling orders, but failed to raise enough queens to requeen my own apiary, which I much de-

sired. I lost many dollars' worth of queens, and worker-bees by thousands.

Accidentally I discovered the cause. I was working in the apiary when my attention was called to a flock of English sparrows perched in single file on the ridge board of the barn and cornhouse, and in line with the flight of the bees. Some of the sparrows were in the air all of the time, and were busy snatching up the bees; and when the bees would come in loaded and drop down on the roof of the buildings the sparrows would hop down and gather them in. I did not count the birds, but should judge that there were from fifty to seventy-five in the flock. I earnestly urge every beekeeper to make war on these pests. They certainly nearly ruined my apiary, and are, without doubt, the worst enemy of the bees and beekeeper. There is no mistake about the matter.

I know of but very little that can be said in favor, and very much to be said against the bird. I might possibly overlook the fact that it is a destroyer of cherries, grapes, pears, peaches, and other fruits, and buds of trees, vines, garden seeds, the tender shoots of young peas and lettuce, together with wheat and other grains (a flock of fifty sparrows requires the equivalent of a quart of wheat daily, making the annual loss caused by these birds throughout the country very great), and the further fact that the English sparrow drives out our native birds, killing their young and destroying their nests, also defiling buildings, ornamental trees, shrubs, etc., with their excrement and bulky nests. I say I might possibly overlook the foregoing; but when these little tyrants attack queens and worker bees, and endanger the safety of an entire apiary, I think it time to call a halt.

To show the nature of this bird I will relate the following incident, of which I was an eye witness. Three years ago the barn swallows built about thirty mud nests under the eaves of the barn above referred to. They were not molested by the sparrows until the swallows had young nearly large enough to fly, when the sparrows attacked them in a body, pulling the helpless young from the nests and dropping them on the ground and roof of the chicken house below to die of cold and hunger. The sparrows took possession of the nests and kept out the swallows. The same tragedy was enacted the following season, and the swallows deserted the location. The same thing occurred with a nest of bluebirds in an old tree.

I recommend that beekeepers send for Government Bulletin entitled "English

Sparrows a Pest" (No. 493), which will be sent free on application to your Congressman or to the Department of Agriculture, Washington, D. C., telling how to destroy these pests; but please be careful not to destroy the little chipping sparrow, which somewhat resembles the English sparrow, but is smaller, and differs considerably in its markings, for it is a friend to the gardener and beekeeper. A pair of the "chippies" kept a patch of twenty-five cabbages in my garden entirely free from cabbage-worms during an entire season, and destroyed many moths in my apiary. Unlike the English sparrows, the little chipping sparrows never do any damage.

Bradford, N. Y.

A DENTIST'S METHOD OF PRODUCING HONEY

Beekeeping Compared with Poultry Raising

BY P. E. WAUGH, D. D. S.

I am a professional man keeping a few hives of bees for pleasure and profit; and like many others, the amount of pleasure I derive is, in a large measure, in proportion to how well my bees do, season conditions considered. To be honest, my fondness for honey was the real incentive for beginning; and when a neighbor told me he got 20 lbs. per colony from box hives I decided to get one. However, at about this time I borrowed a copy of the A B C of Bee Culture, and found out more about beekeeping in an hour than my neighbor knew all together. One hundred sections per colony is common, and sixty my lowest average.

With a little experience I found I should need one or two colonies to experiment with—one to supply honey for my own family, and a few to furnish that tidy little sum of money each year that adds just that zest to the business that holds the interest year after year.

I have my own scheme for swarm prevention that works in most cases, and I certainly get the honey. Having two shallow bodies to each colony I reverse them as soon as the top one is full of brood and honey, and put the supers on top. The queen now occupies the upper body; and as soon as it is pretty full I reverse again. The super work is now started, for I use baits in the super; and if in looking over the hives I find queen-cells I take away the super (bees and all) and give to the nearest very strong colony not showing queen-cells, putting an empty super in its place containing baits and empty sections. Then I reverse and take away a super again if necessary. I give as many as three of these supers to some strong hives; and how the bees do work! I

have a space below frames open full width at both ends.

I introduce queens of different races; raise young queens; find by personal observation how old a queen is before she mates, and how soon after she begins to lay; keep old queens after the bees decide to supersede her and watch both queens laying on the same comb, etc.

The work is all pleasant, and not to be compared to keeping chickens. The supers are prepared indoors during leisure hours, for recreation. If a big cloud comes up, I don't have to telephone my wife to gather the live stock to keep it from standing under a weed and getting chilled or drowned. What a pleasant sight it is to see the bees come pouring into the hive when the sun becomes overcast and the first cool breeze of a spring storm stirs the leaves! Chickens are a nuisance in town, any way you look at it. I had them several years, and made them pay too. But they are dirty things, and require endless care and looking after.

No, sir! Give me bees. I believe I can demonstrate that I can produce enough honey from *one hive* for the average family's yearly use, using shallow extracting-frames in super with full sheets of foundation and a good colony of Italian bees.

Tola, Kan.

ANOTHER DENTIST WHO FINDS BEEKEEPING ON A SMALL SCALE A HEALTHY EXERCISE

BY DR. R. M'CULLOUGH

Of all the professions, that of the dentist is the most exhausting in that it has, in addition to all the other strenuous conditions peculiar to professions, the element of close confinement added, and that, too, for long hours. This feature is so fatal that reliable statistics show that the average life of the dentist is only about forty-five years, which indicates that the man who allows his work to master him—that is, who attends strictly to business, as we are so often admonished to do—is destined to early retirement. The logical conclusion, then, is that the dentist who wishes to survive must have some outdoor attraction; and I will most positively say that "bees are it."

When I say that, I mean that beekeeping is far beyond any other avocation I know of, and I think I have tried them all. I have been advised, times without number, to take long walks, morning, noon, or night; but without an incentive one is simply not going to do it. Now bees offer that incentive.

Some fine spring morning you see your

bees coming in with great loads of bright-yellow pollen. Where are they getting it? Before you realize it, off you go to find out; and after a good tramp you may find them working merrily on the pussy willows. Then by the time you have lost interest in the source of the yellow pollen, another color catches your eye, and you are off again to ferret out the new source of supply.

All the time this is going on, with what pleasure you note your bee family growing full and strong for the coming harvest, and all without the everlasting worry of feeding, watering, cleaning coops, etc., attendant on poultry-raising for instance.

By the time you have located the source of most of the pollen your attention is attracted by the heavy manner in which your bees are dropping down to the entrance, and the general appearance of hustle in evidence. Away you go, and, may be, after two or three morning tramps you discover the locust trees in bloom, and the air filled with their fragrance and the hum of bees; and you go on to your office with a smile on your face that lasts all day.

So it goes from spring to frost, always something new, giving your pets this little attention or that, until you arrive at the close of the year, and realize that you forgot all about taking that vacation which you have usually been compelled to take; and when you begin to analyze your condition you are compelled to admit that you never felt better in your life.

But suppose you did not forget about your vacation; well, go ahead and take it. See that the bees are not cramped for room in the mean time, and they will be there when you come back, probably all the better off for your absence, and you will not have bothered your neighbors to feed and water them while you were gone either.

I have been writing as one professional man talking to another, and I think I can not do better than to go on in that strain. All that I have been saying can probably be summed up in a few words by intimating that I have been getting the outdoor exercise of which I was so much in need, without the consciousness that I was just doing something for health's sake.

Poultry may give you something to interest you out in the back yard; but the back yard is the limit of your interest; and accompanied with it is the constant responsibility so that, when the first enthusiasm wears off, you begin to feel more tied down than ever, which in reality you are. The same might be said to a greater or less degree of almost every other avocation with the exception of bees.

With them your interest is extended to

the whole territory surrounding you; and through your curiosity to ascertain the source of pollen or nectar, or the cause of this or that activity, you find trees in blossom that you never dreamed had a blossom, or that what once you considered a noxious weed possesses flowers which, for intricacy of form, relegates the American beauty to the commonplace. What great variety of size and form of bloom, simple and compound, making it hard or easy for the bee to arrive at the coveted sweet within! and with what untiring perseverance the little fellow labors to acquire the precious load! And then the home of the bee itself! what everlasting interest and wonder are enclosed in the four walls of their little house! But why say more? All these things are better appreciated when seen than when read about; and the pleasure is all in finding out for one's self rather than told.

I do not know that I can do better than to tell something of how I myself became interested in bees. As I intimated earlier, I had gone pretty well the rounds in avocations—so much so that it got to be something of a speculation in the community as to what Dr. Mc. was going to raise next. One day when I went to our public library the librarian handed me a journal with the remark that it would likely interest me. It proved to be Christmas number of *GLEANNINGS* for 1908, and interest me it did. I have it yet, though much the worse for wear. That winter was spent reading every thing I could get my hands on relating to bees; and the following spring found me with a hive of bees on my back porch, having at that time no other place to put them, much against the wishes of Mrs. Mc., who protested that the children would be stung to death. I will admit that I had some concern in that regard myself; but we were happily surprised to find that the bees confined their attention to their own business and bothered no one, regardless of the fact that the children played on and about their hive, and rather roughly at times at that.

As a further inducement to the good wife to allow me to enter upon this new venture I proposed that the product of the hive should be hers. This arrangement has proven satisfactory in more ways than one—satisfactory to her, as it nets her from five to eight dollars a year pin money, and satisfactory to me in that any inquiry of me as to the purchase of honey is referred to her, relieving me of the mercenary side of the proposition.

This statement causes me to suggest to any who might think of keeping bees as an avocation to keep only a few bees, say not more than three colonies, so that your

pleasure in them will not be converted into a burden, and also so that the idea of profit in dollars and cents from them does not overshadow the profit from healthful exercise, and freedom from anxiety in regard to them. You keep bees for your health; let the fellow who keeps them for a livelihood do the worrying as to the mercenary side of them. Stick to your own business for your living, and to your bees for recreation.

Pittsburg, Pa.

HONEY AND BEES AT THE HAMILTON COUNTY FAIR

BY HENRY REDDERT

The agricultural fair just ended was a great success in all its details. The efforts of the fair committee were duly appreciated by the great crowds of visitors during the four days of attendance.

There were two entries of bees and their products, and one entry of beekeepers' supplies by Mr. Charles H. Weber. Mr. J. G. Creighton, of Harrison, Ohio, secured first prize on the best display of comb and extracted honey; first prize on wax and comb honey, and live bees in observatory hives. Mr. Lenert, of Elwood Place, took the first prize on extracted and second on comb honey and beeswax. Mr. Creighton's honey was all in crystal-white jars of various forms and sizes, from a gallon down to a pint. Mr. Lenert's honey was in green jars—a practice all exhibitors of extracted honey should avoid, as it gives a different hue to the honey. The honey he received first prize on was in a small crystal-white pint jar. Had he used white jars for the entire display it would have shown up very much better.

The exhibitor should use various forms of jars, and set them in such a way as to make a harmonious picture to draw the attention of the visitors. Mr. Creighton's wax was not as light-colored as Mr. Lenert's. It was chocolate-colored and put up in twenty and five pound pieces, and so formed as to resemble a decorated chocolate cake. Had he not marked it, nine out of ten people would have taken it for such. I was puzzled myself until Mr. Creighton explained. I presume the bulk and shape secured him the first prize on wax.

We have quite a number of large beekeepers in our county who have the time to make a good display if they would only make up their minds to do so. To my mind it is a great advertisement to beemen who sell honey in large quantities, retail and wholesale. Then, again, it helps to enlight-

en the public as to the good uses of honey. I saw no department where people were so deeply interested as in our small honey-gatherers. The time I was present (and he told me it was the same the entire four days), Mr. Creighton was constantly busy explaining the various operations of the hive. He showed them the queens depositing eggs the same as if in their own yards. This aroused considerable interest.

Cincinnati, Ohio.

FRANK RAUCHFUSS

BY WESLEY FOSTER

The Germans are the greatest beekeepers in the world. The largest beekeepers' associations are in Germany. Furthermore, many of our American beekeepers are descended from German stock. For instance, my grandmother Sehnee never learned to read English; but her German Bible was her comfort. My father was half German, and so my instinct for beekeeping and the taste for honey was early manifested.

The four best apiaries in Colorado, in point of care and tastefulness of arrangement are owned by three Germans and one Swede, and the Swede learned his beekeeping from a German neighbor. Mr. Frank Rauchfuss is one of the Germans. There is no beekeeper in the West, or in Colorado in particular, but that knows Frank Rauchfuss personally or by reputation. Coming to this country when but a lad, he clerked and kept books, and managed departments in mercantile establishments in New York, Louisville, and Denver. While in these lines of work he became familiar with American business conditions. For several years he managed the bee-supply department for the L. A. Watkins Mds. Company, of Denver, and while there his career began as chief organizer of the Colorado Honey-producers' Association.

With his brother Herman the Rauchfuss foundation-fastener and section-press was brought out, and practically every specialist in Colorado has one. A simpler and more efficient machine has not been made.

In 1899 the Colorado Honey-producers' Association was organized, and Mr. Rauchfuss was made manager. A room was rented beside the L. A. Watkins Mds. Company's warehouse, and there the beemen hauled their honey and received their supplies on Saturday afternoons when Mr. Rauchfuss was off duty at his regular employment. The business soon grew so that it was necessary to keep the store open every day. Mr. Rauchfuss resigned his position with The L. A. Watkins Co., and

has been manager of the Honey-producers' Association ever since. He is a quiet, unassuming man, of definite ideas. Any one acquainted with him knows of his strong characteristics in this line. One of the book-keepers of the Association once told me that when a beekeeper who had been doing faulty grading came into the store she left the office because she could not stand it to hear Mr. Rauchfuss "go" for him.

Mr. Rauchfuss has hobbies the same as all of us. He has a spotless little place out in Aurora, a suburb of Denver, where he pursues gardening, poultry-raising, bee-keeping, and the raising of goats. At the last account he had five goats, I think. If you never drank goat milk you don't know that the Jersey cow has a superior in the way of a cream-producer. Mr. Rauchfuss told of an amusing experience he had at the interstate fair in Denver. The judges tested the milk that he exhibited, and found it so much richer in butter fat than any other that they charged him with having mixed cream with it, which charge he denied with all the earnestness possible. Later, when he told them that it was goat milk, he had the laugh on them.

Mr. Rauchfuss works in his garden a good deal, and I have been told that a weed could not be found inside the fence. It is probably true, for I never saw any there. With the few lots for garden and fruit, the poultry, the bees, and the goats, the income is no doubt augmented several hundred dollars yearly. A better example of intensive gardening could hardly be found than the one I am describing. Mrs. Rauchfuss took the first prize at the interstate fair in Denver not long ago, and her honey-cooking recipes exhibited on the demonstration train delighted every one, which is only a proof of her excellent cooking. Mr. and Mrs. Rauchfuss have a little son, Walter, who can talk German, but thinks it more polite to talk English because the other boys do.

After having told you these rambling things about our friend, you will be interested in visiting him any day at the office of the Colorado Honey-producers' Association in Denver. You will find that he can tell many interesting things about western beemen and western conditions in general.

Boulder, Colo.

Slabs of Candy for Winter Stores

Last winter, in my own apiary there was no loss. I wintered out of doors in common dovetailed hives. I kept slabs of candy on top of frames, chaff cushion on that. My bees were stronger April 1 than they were Nov. 1, making honey on the first bloom at present.

Morrisville, Mo., May 1.

H. CLAY DAY



Apiary of J. L. Strong, Clarinda, Iowa. The apiary house and south part of the yard are not shown. There are four rows of hives, twenty-five in a row. The small hives shown are twin mating hives.

THE BROOD-SURFACE IN DIFFERENT-SIZED HIVES

How Different Conditions have a Bearing on the Problem

BY ARTHUR C. MILLER

Brock uses ten-frame hives. Oppenheim-er uses twelves, and Old Man Philetus uses eights; and each one is cocksure that he has the right size, and that the other two are wrong. Perhaps each is right. What do you think?

"Location," did you say? "Location be hanged! No, you needn't get huffy, but just listen and cool off.

Brock uses a standard ten-frame body in which the frames, after a little swelling and propolizing, fit so snugly that the outer surfaces of the outer combs are so close to the hive sides that they rarely have any brood put in them, and hence not much on the other surface. So he really has but little more than eight combs available for brood.

Oppenheimer's twelve combs fit about as do Brock's ten, so he loses nearly two, leaving him with but about ten for brood.

Old Man Philetus' hives are standard eights, with ample room for the frames which are kept away from the hive sides so that the outer surfaces of the outer combs are occupied with brood.

Didn't realize how nearly alike the different brood-nests were, eh? Well, they are nearer than that; and, what is more, Old

Man Philetus actually has more brood in his hives than either of the others.

We will do some measuring and counting, not because you like to fiddle with figures, but because they are good for your mental digestion.

A standard L. frame with inch-thick top-bar has an internal area of 134 square inches. Figuring 25 cells to the square inch, and doubling it for the two surfaces, such an area would have 6700 worker-cells; by count it is 6800. Those are the figures provided the combs are built on foundation and fill the frames. But how many combs approach that condition? Let us go to the different yards and see.

O. M. P.'s combs fill the frames solid from top-bar to bottom-bar, and from end to end, and all worker comb—that is, all but the lower half of one comb in each hive, and that is drone comb, and all the drone brood is there. Wise Old Man Philetus! His combs are beautifully filled with brood, even regular sheets of it, and only a narrow line of honey and pollen next the top-bar.

Deducting the half-comb of drone and the total area used for pollen and honey in the eight combs, we find that there are about 45,000 cells of worker brood. (Not nearly enough for a good queen and best results, as O. M. P. has learned, and he is changing to larger hives.)

Brock has good combs built on foundation in wired frames but the combs do not touch the bottom-bar, and are rounded off



Mr. Luke, of Jefferson Co., Ind., and a part of his bees.

on the lower edges or have a fringe of drone-cells and more of the same in the lower corners. By measure we find that an area equal to a frame and a half is thus wasted. In other words, he gives to drone comb about double the surface given by O. M. P., and loses the area of half a comb by unoccupied space. The amount of honey and pollen is much the same as in O. M. P.'s, except that the two outer combs are all or nearly all honey and pollen.

By measure and estimate we find Brock's ten combs when in use have available for worker brood the equivalent of but seven perfect combs of the O. M. P. capacity, or 47,600 cells.

Brock doesn't like the showing, but has to admit its truth. To make him feel better we will take him with us to Oppenheimer's.

O.'s "twelve-frames" look immense beside O. M. P.'s "eights," yet there does not seem to be much more hustle, except of drones. We open up some hives, and here is what we find. (Really it is a shame to expose O., but after all it is best for everybody concerned.) Some of O.'s combs are built from starters, some from full sheets, some wired and some not. The two outer combs contain only honey and pollen. The other combs contain many drone-cells, sometimes a strip along the lower edge two to three inches wide; also spots of them here and there over the surfaces. The brood

in these combs is not in solid sheets, as in Brock's or O. M. P.'s, except in the combs where wired frames of foundation chanced to have been used. Pollen and honey are found in patches here and there among the brood; and where the foundation has stretched, wide strips along the top-bars are filled with honey. By measure and estimate we find that O. has the equivalent of but seven combs of the O. M. P. type.

To be sure, his queens have more room to lay; but it is in drone-cells, and hence a loss to him. And Oppenheimer is mad, and insists that his combs are as good as the average run of combs. He is right, there; but the "average" is lower than what a hen lays an egg on daily.

By a little figuring, we shall find the available worker-cells in the three typical classes of combs to be as follows:

O. M. P.'s "Best," 6460.

Brock's "Good," 5950.

Oppenheimer's "Average," 4760.

But more brood is produced in the same worker-cell area of "Best" and "Good" combs than in the "Average," so the latter are even poorer than the figures indicate.

That is a long way around to reach the point; but the longest way around is the nearest way home, or is so reported by persons not really strictly sober.

One of the boys will say that his queens keep only an eight-frame hive properly full of brood, while his neighbor says it takes



A portion of the apiary of Mr. Chas. McCauly, Jefferson Co., Ind.

trees. In ordinary years, everywhere one looks there is a profusion of white bloom. Basswood, locusts, poplars, blackberry, raspberry, yellow and white sweet clovers, asters, and white clover seem to vie with each other in the abundance of their bloom. In most parts of the county the sweet clover, basswood, locust, and white clover are the chief sources of nectar.

This is about the only locality in the State where nearly every one keeps bees. However, there are few professional bee-

keepers. The chief beekeeper, Mr. Chas. McCauly, died the past winter, and with him has passed the chief of the professional beemen. It was Mr. McCauly who first brought in yellow sweet clover, and he was the first to demonstrate that Jefferson County has a honey-flow so dependable that one may make honey-production his only source of income. There are hundreds of beekeepers who keep from one to twenty colonies. Not many keep more than fifty, but a few keep a hundred or so.

Most of the county is very broken. The twelve combs to accommodate his queens. Possibly it is the queens; but it *may* be the combs. Better find out before you waste ink and paper and use up valuable space in the magazine, as I am doing. Lest you should run out of food for thought, consider the following: It costs less to get "Best" combs than it does those of the "Good" grade; and when you take into account trouble and labor, combs which have to be cut out and replaced, excess of drone combs, uneven comb, etc., you will find that the "Average" grade is the most costly of the three.

These are cold hard facts. Use the cold part to relieve your aching head.

Providence, R. I.

BEEKEEPING IN JEFFERSON CO., IND.

Sweet Clover Preventing the Land from Washing

BY B. F. KINDIG

I am always glad when my work calls me to Jefferson County, Indiana. The hills and valleys covered with a mantle of honey-producing plants always fill me with admiration. This is the home of the locust



Picturesque drive shaded by locust trees.



FIG. 1.—Combs of colony with Isle-of-Wight bee disease.

forests have been pretty well cut over. Where the land is not cultivated, the locusts have taken possession of considerable areas. The land that has been cultivated or pastured is mostly covered with sweet clover. And sweet clover has been the farmer's salvation here as in many other places. It stops the washing, or prevents it. It puts the necessary humus and nitrogen into the leached hillsides, and rejuvenates them. With the clearing of the forests the natural fertility began to decline, and the hillsides washed until there was almost no vegetation to cover their rocky sides. Then sweet clover came and put new life into them. Blue grass began to take root, and white clover followed; and now those slopes to which sweet clover first came are covered with a beautiful carpet of blue grass through which peep millions of white-clover blossoms. In addition, sweet clover, that "noxious weed" which has been fought with scythe and by legislation, has gained a well-deserved victory and now furnishes tons of nectar for Jefferson County beekeepers.

Although the land is of limestone formation, it is common to find some of the flat hilltops sour. But that is to be expected unless the region be rather arid, for the tendency toward sour soil increases with the increase in total annual rainfall. Usually only the flat hilltops and ridges and the fertile bottom lands are cultivated. The sweet clover on the hillsides is usually cut once, and then allowed to grow up and

bloom. This gives an excellent flow of later honey.

Very few colonies of bees have to be fed in the fall, for ordinarily the aster flow is sufficient to insure an abundance of winter stores.

Jefferson County has a smaller number of cases of foul brood per hundred colonies than any other county in the State that I have investigated. Both European and American are here, but are only rarely found. Some years ago foul brood was a common trouble; but after their sad experience the beemen are on the alert, and use

vigorous measures wherever a case develops. One item that probably contributes largely to the scarcity of foul brood is the large number of bee-hunters and the resulting small number of bee-trees. In some counties of this State, everywhere one goes the cry is, "Give us a law that will allow us to



FIG. 2.—Condition of bottom-board under Isle-of-Wight disease colony.

enter upon a man's premises and cut the bee-trees so that we may destroy the sources of infection." Here the unwritten law is that, wherever a man finds a bee-tree, it is his to cut and rob. I feel sure that this custom is in a large part responsible for this small per cent of foul brood. But this is the locality par excellence for sac or pickled brood. I have found it in hundreds of hives, but it rarely proves very serious.

On May 23 many colonies were literally living from hand to mouth. Spraying when the fruit-bloom was open weakened many yards, and a number of colonies were reported to have been killed. There was very little locust bloom this year. A very dry period, followed by cold rainy days, prevented any considerable work on the white clover. Beekeepers in general were feeling very pessimistic in regard to this year's honey crop; but at this date, June 7, a bumper honey crop is in the making.

Indianapolis, Ind.

THE ISLE-OF-WIGHT BEE DISEASE

BY JOSEPH TINSELY

The beekeepers of these islands are considerably disturbed by the prevalence of the Isle-of-Wight disease; and although it is some time since it appeared in England, yet it shows no signs of abating. Formerly it was known more as a summer or early spring complaint; but in our own county we have had a rude shock in the way of winter mortality.

The symptoms in the summer are well known. I was called to a case last July. A beekeeper had a dozen excellent colonies. The bees were storing honey rapidly. When I went over, each colony had fully 60 lbs. in the honey-chambers; then, as if by magic, the Isle-of-Wight disease gripped them. The sight was most peculiar. Thousands of bees were crawling all around the hives, unable to unite their wings. Small pieces of grass and weeds around the apiary were seized upon by the insects to raise themselves higher, where they clustered in knots. The bees were swollen; and if one was pressed with the feet the excreta would spurt out as if the whole body of the bee contained nothing else. Sulphur and several advertised cures were tried, but all in vain, and the bees dwindled away rapidly.

Considerable conflict of opinion is being noticed in England at the present time as to the cures. Some have achieved success with certain remedies, while the same remedies in the hands of others have met with no success. The investigations made by the



FIG. 3.—Bottom-board covered with the excreta of the diseased bees.

Board of Agriculture have also done very little toward the eradication of the disease; and in their official report they state definitely that there is no cure, and advise burning. Until last year we were not seriously visited in this county with the pest, although it was in adjacent counties. The losses in some places are enormous. I know of more than 500 colonies being lost in one county alone. Even the experimental apiary connected with the British Beekeepers' Association at Swanley was attacked by the pest.

The winter state of the disease is all the more alarming. The bees go into winter quarters in apparently good condition; but when one takes his early spring peep to see how things are going he finds a great many



FIG. 4.—The bee on the left is diseased. Notice the distended abdomen and the unnatural appearance of the wings. The bee on the right is healthy.



A 2½-year-old beekeeper.

dead bees. I was called by a beekeeper in February who had lost half of his colonies with the Isle-of-Wight disease. I took photos of the bees, which I enclose. In illustration No. 1 are three combs taken from the dead hive, showing the exact condition of the stock. On the right hand is a fine comb of honey, weighing approximately 6 lbs. There were three like this. In the center will be noticed a small patch of brood, showing that the queen did her work right up to the last; and it is a peculiar feature of the disease that the queen is the last to die. I found her very easily, and her body was quite fresh, giving one the impression that she had not been dead more than a day. The comb on the left consists of empty cells where many of the bees clustered only to die. The bees were badly swollen, and all over the interior of the hive, and on the combs, was noticeable the peculiar faeces emitted by the bees.

The second illustration shows the floor-board. Not a live bee left. The sight was appalling, and we walked away from the apiary wondering what would happen next. The beekeeper in question was one of the most up-to-date men we have. Every thing that could be done for the bees had been done. They had clean, dry, sheltered situation, and plenty of good food and winter covering. Foul brood is insignificant in comparison. I have seen 60 lbs. of honey produced from a colony suffering from foul

brood; but I doubt whether we shall see 6 lbs. from one suffering from Isle of Wight. This year up to the time of writing I have seen no less than 10 apiaries devastated as a result of the disease.

One point I have noticed very particularly and that is that I have not seen a colony of Italian bees with this malady. Of course I am only speaking now of what I have seen, but I have great faith in the Italians as disease resisters. On the other hand, we have a number of beekeepers in England whose bees are kept in any thing but a proper manner, and who pay no attention to the improvement of stock. Possibly a lowered vitality in the strains of bees in this country has been responsible for the pest finding a home. This, of course, is my theory only; but as I have studied the disease since its first appearance in this country, and am in communication daily with the best beemen in the British Isles, I hope to state some reliable facts shortly.

Stone, Staffs., Eng.

A "NEW" BEEKEEPER

BY FRANKLIN E. JAMES

After keeping bees for a year I would say that I have had more genuine pleasure and gained more knowledge than I could have believed possible; and, besides, they have more than paid for themselves, as I got a good crop of honey. There are many beekeepers around here; but most of them still use box hives, and have little acquaintance with their little workers. Some of them still sulphur the bees whenever they want to "take" the honey, and no amount of persuasion can make them change their methods. I am sending a photo of my youngest boy; and, although only 2½ years old when the picture was taken, he could handle the frames in a hive nicely. When I asked him to pose for his picture this is what he did, saying, "They won't hurt you."

New Bedford, Mass.

SNOWDROP AS A HONEY-PLANT IN IDAHO

BY F. F. GEORGE

I believe you need an up-to-date picture of a wonderful honey-yielder, snowdrop (buckbush). By looking a little close you will notice almost a mass of white berries. I am quite sure nurserymen once sold it by the above name; but I think I will submit to the name "buckbush."

This plant blooms here in June, before the white clover. I have a bottle of the honey

secured in June, 1910, that is not candied yet. It is very light amber now, but water-white when first extracted. The flavor is very pleasant, and it does not detract from the flavor of white clover. The plant grows everywhere here, from 6 in. to 4 ft. high. Pheasants and cattle eat the berries. The cattle also browse on the tender twigs in summer. It has been reported to me that the same bush bears red berries in northern Missouri. They are white here, and they have a mild, sweet, bitter taste.
Fraser, Ida.

AN OPEN FENCE FOR A WINDBREAK

BY GEORGE SHIBER

After carefully reading all that had appeared in the journals on the subject, I built a windbreak last fall in order to shelter my bees from the winter winds. I decided to have it 7 feet high; and knowing that it would have to withstand hard wind pressure I selected 4 x 4-inch posts imbedded three feet in the ground, with two cross-pieces of 2 x 6-inch stuff.

Then the question was, whether it should be tight or open; and if open, how much so? After considering the matter on both sides I decided to have it open—that is, the boards were 7 feet high, and separated two inches. I concluded that, if it should appear that the tight fence was better, it could be easily changed.

I was agreeably surprised to note the difference in a strong wind, the inside being comparatively calm. The air was just in motion. The entrances to the hives pointed away from the wind also.

Well, I concluded that the colonies ought to winter well. They were abundantly fed last fall; and now I am reminded of something Mr. Byer wrote Jan. 1, p. 10, to the effect that the paramount question in wintering by any method is that of having plenty of stores in the hives. From my experience I would most emphatically say that he need not guess again.

I used planer shavings for packing, placing a hive-bodyful above the frames, and that is all the packing they have. No paper or packing is around the sides of the hives at all.

Of course, up to date, Jan. 20, we have had a very mild winter, and we may have some severe weather yet, but so far every colony has wintered well—I might say perfectly.

I do not think my windbreak will have the disastrous effect mentioned by A. J. Halter, p. 55; for when there is a wind the cool air is in motion inside. The enclosure



Snowdrop, or buckbush—a honey-plant in Idaho.

is sufficient, I think, to keep them in the hives when too windy to fly safely.

The editor is, I think, entitled to credit for bringing up this point strongly. It seems, therefore, to me that a windbreak, of whatever kind it is, should be somewhat open; and yet subsequent experience may prove it to be wrong.

Inside the windbreak the snow is distributed evenly, not drifted at all.

I do not like to have the snow drift around the hives, as it has a tendency to make the inside of them damp. I want perfect dryness to prevail in the hives.

Randolph, N. Y.

THE NEW TEXAS FOUL-BROOD LAW

BY WILMON NEWELL

The new Texas law relative to bee diseases, mention of which has heretofore been made in these columns, went into effect July 1, and is, perhaps one of the most comprehensive laws on the subject that have yet been enacted. Briefly stated, its main provisions are as follows:



Sweet-clover roots. Photograph sent by W. E. Kirk, Amarillo, Texas. The seed was sown six months before the roots were pulled. The center root weighed 4½ pounds. The root at the extreme right grew on sod land.

The law previously in effect is repealed, and the new law specifies that the Entomologist of the State Experiment Station shall be State Entomologist of the State, and have charge of the enforcement of the law. Under the former law the Professor of Entomology in the Agricultural and Mechanical College was State Entomologist. This change was made principally because such work as eradicating foul brood was deemed more appropriate for an Experiment Station than for an educational institution. This change in the law does not, for the present at least, make any change in the incumbent of the office of State Entomologist, as Mr. Wilmon Newell, the State Entomologist, is entomologist of the Station, as well as Professor of Entomology in the College.

Section 3 authorizes the State Entomologist to issue such regulations relative to quarantines, shipment of bees, etc., as may be necessary to a proper enforcement of the law, and any violation of these regulations is defined as a misdemeanor.

The provisions of Section 4 require that all bees, except those shipped in wire cages without combs or honey, when shipped into the State be accompanied by the certificate of the State Entomologist or Chief Foul-brood Inspector of the State from which they are shipped. However, in those cases where a certificate can not be obtained from the proper State official, or where there is no State inspection of apiaries, permission to make the shipment into Texas may be obtained from the Texas State Entomolo-

gist upon the presentation of suitable evidence showing the bees to be healthy. As noted above, these requirements do not apply to the shipment of bees in wire cages without combs or honey. On shipments of these there are no restrictions. The provisions relative to queen-bees are in exact accord with those of the Postoffice Department, i. e., queen-bees must be accompanied by a certificate or by copy of an affidavit showing that the honey used in making the candy contained in the cages has been suitably boiled.

The law authorizes the State Entomologist to make regulations relative to the interstate shipment of used hives, fixtures, etc., and makes it obligatory upon all common carriers to comply with such regulations.

Shipments of diseased bees found in the possession of any common carrier may be confiscated by the Entomologist or his inspectors, and, for purposes of inspecting bees that are in process of shipment, these officials are authorized to enter railway depots, cars, express offices, etc.

The new law is, perhaps, unique in its provisions for the quarantining of counties or other areas within the State of Texas. The State Entomologist may impose either a "protective" quarantine or a "restrictive" quarantine in any county or group of counties. A protective quarantine is defined as one which is to keep diseased bees out of any county or other area which may be either free from the disease or in process of being freed by the work of eradication.

Such quarantines as this have heretofore been in force in Texas. That is, whenever the attempt was made to free a county of foul brood, the movement of bees *into* that county was prohibited except upon their being inspected and found healthy. The restrictive quarantine, on the other hand, provides for prohibiting the shipment of bees out of any county or other area in which disease is rampant. The object of the restrictive quarantine is to prevent the general dissemination of disease from any badly infected locality.

In the enforcement of the new law the State Entomologist is given authority to take testimony under oath, to compel the production of books and papers, and require the attendance of witnesses for examination. The sheriffs and constables are required to assist the State Entomologist in the discharge of these and other duties whenever called upon to do so.

Provision is made for the publication of literature of importance to beekeepers.

Provision is also made for the transfer of bees from box hives to frame hives, upon order of the inspector; and in the failure of such transfer the inspector may transfer the bees and thereafter legally collect from the owner the costs of the transfer. In a similar manner the cost of treating diseased bees may be collected from the owner thereof.

The malicious exposure or distribution of diseased combs, fixtures, or infected honey is made punishable by a fine of from 25 to 200 dollars. The penalty for selling or bartering diseased bees is the same. A similar penalty may be imposed upon any one convicted of trying to prevent inspection of bees, either through threats of physical violence or by intimidation.

The foregoing statement includes the most salient points in the law which are of interest to the general reader. Texas beekeepers will, of course, find it to their interest to have a full and complete copy of the law at hand.

As soon as conditions permit, the State Entomologist of Texas (whose address is College Station, Texas) will issue the new law in booklet form for general distribution to the beekeepers of that State, and to such other parties as may be interested in its provisions. We are advised that these booklets will probably be available for distribution by Sept. 15 or 20.

College Station, Texas.

SMOKERS

A Larger and More Efficient Smoker Needed

BY R. F. HOLTERMANN

To me the bee fraternity often appear like a flock of sheep or a cluster of bees especially black bees that have been smoked too much, and are following those who start a run, not thinking whither they are going. What I mean is, that there is too much of a tendency for the majority to follow others regardless of the wisdom of doing so. In this article I am going to undertake to say something to the beekeepers; and if, incidentally, it hits the supply dealers, it will not be the first blow they have had.

My special complaint in this article is the smoker question. In my estimation there is not a smoker advertised by any supply dealer in this continent which can not be made vastly more efficient, especially for the beekeeper who uses such a device hour after hour, and also for one who has only a few colonies, because, as a rule, a beginner is more timid, and requires a volume of smoke at a moment's notice. Let me say here that I am no advocate of heavy smoking. I object to unnecessary smoking; but, nevertheless, there are times when, owing to weather or possibly to some blunder of our own, the bees become almost unmanageable. And it is then that smoke is needed at once, and lots of it.

It is unnecessary for me to trace the history of smoking bees. I believe some trace it away back when the progeny of bees burned to death in forest fires inherited the fear of fire, etc. To my way of thinking, the bees fear smoke because of their sensitiveness, and because of their highly developed breathing-organs which are irritated and stifled by smoke.

It has been my hope that somebody would invent something practical for the apiary with which to smoke bees that would be less trouble than the regular smoker. But my present purpose is to seek to *improve* the smokers. The compartment for the fire has been enlarged somewhat from time to time, and no doubt there has already been a vast improvement; but when a smoker that is always in use requires loading so often, and thus takes valuable time, I have wondered why the capacity for fuel could not be still greater and thus save more time. I therefore ordered Jumbo smokers with the fire-cups three inches longer than usual. These I have used for several years. Last winter I decided that I wanted even a larger fire-cup as well as a larger bellows, and so ordered a dozen of that kind. The chief rea-

son why I ordered these smokers is because the grate at the bottom of the fire-cup is stamped, legs and all, out of one piece of metal, and there are thus no obstructions to the grate to interfere with the draft.

The sample smoker that I received first had a fire-cup $4\frac{1}{4}$ inches in diameter, and $8\frac{3}{4}$ inches long without the cover; and the bellows was $5\frac{5}{8}$ inches wide by $8\frac{1}{2}$ long, the leather being 4 inches wide at the top. This smoker was so superior in the estimation of those helping me, that whenever I was working with the bees I had to have it plainly understood that this extra-large smoker was *mine*.

Brantford, Ont., Canada.

BEE CULTURE AND ITS POSSIBILITIES

A Glimpse from One Locality in the South

BY A. I. ROOT

I said to our people a few days ago that it was no more than fair that the great wide world should know what is being done and what can be done in a wide section of territory; and to commence with I sent a letter to our good friend Marchant, asking him some questions. Below I give you a list of those questions and his reply.

Friend Marchant:

What I should especially like to know is, how many colonies of bees you had to start with last spring; your yield of honey, say in tons, and about how many colonies you have now. If you have sold bees to any amount, of course that would come in. Then I should like to have a brief statement as to the sources of honey, and, if you have no objections, state the price you receive for it. I suppose you do not produce comb honey—at least not to any extent. We should like to know, also, how many out-apiaries you have, and how many colonies you find it best to keep in each apiary. Do you have an extracting-outfit located at each apiary? or do you carry your extractor around to each apiary? Any other items you may think of interest we should be glad to get. One reason I have asked the above is because I fear our people have been a little backward about letting the world know the possibilities of bee culture.

Your old friend,
A. I. ROOT.

Mr. A. I. Root:—The number of colonies of bees I started with last spring was 530. This includes the hospital lot, which was about 40 colonies that did but little toward gathering any surplus.

My yield of honey was about 30 tons. I now have 700 colonies. I also sold 100 1-lb. packages of bees with queens. These came out of this lot of 530. Of course I have a queen-yard independent of this lot. This honey came from the ti-ti, black gum, and willow, but the surplus came from the black tupelo and the white tupelo. It brought me f. o. b. here $7\frac{1}{4}$ to $7\frac{1}{2}$ cts. During spring, or the main honey-flow, I had only two

yards besides my queen-yard. At present I have five outyards, but will unite them into two or three yards next spring.

I find that from 250 to 350 is best for each apiary, but I have had 1000 in three yards, and they did equally well.

I have an extracting-outfit at each apiary.

This lot of bees would have produced several tons more of honey had it not been for a flood in our river during the main honey-flow, and lasting all through the flow. This caused the bees to become demoralized, especially during swarming, when lots of them were lost in the water. Besides, the apiary could not be kept up to the standard, as one could not take care of the swarms. In fact, you could not tell what hive they came from; and, of course, the parent colony, not being operated to cut out all cells, this caused afterswarms and crippled the apiary a great deal. The yard that was overflowed had 380 colonies.

In some correspondence I had with the company some time ago I wrote them my crop brought \$3100. This was sold to one man alone, and I forgot to mention the rest I had furnished to my regular customers.

A. B. MARCHANT.

Apalachicola, Fla., Aug. 25.

[Perhaps I should say right here that many successful beekeepers have objected to printed reports of their work, because there are always a lot of foolish people who will dump a lot of bees right into their neighborhood, thinking, evidently, that it is locality and not the man that "delivers the goods." I heard this same thing in California. In fact, it has been discussed all around; and our neighbor Rood in Florida objected to reports of what he had done, because several times his locality was overstocked by beekeepers moving into the neighborhood or locality. Therefore please do not think of moving bees where these big reports come from until you have first corresponded with the man making the report. In this way he and you could arrange a location that would not be likely to interfere with his own field. See "Overstocking" in the A B C book.—A. I. R.]

Wintering Nuclei in One Hive

I have several nuclei with queens that I wish to winter if possible in order to save the queens. Would it be all right to divide a ten-frame hive into two or three parts with wire window-screen, giving each nucleus a separate entrance? The hive is a double-walled chaff, in protected location.

Indianapolis, Ind., Aug. 2.

W. E. GREEN.

[The plan proposed might work, but it would be our opinion that it would be better to use thin boards, ~~say~~ 3-16 inch thick, in place of the wire cloth.—Ed.]

Heads of Grain from Different Fields

How we Give Live-bee Stunts Before an Audience

I have an engagement to give a live-bee exhibit at our county fair this fall. This will be my first experience. Is it advisable to feed the bees while they are confined?

Wausau, Wis., Aug. 14.

O. S. LUNDE.

[Generally speaking, we would advise gentle bees for live-bee-demonstration work. However, for our own uses we would not pay any attention to that matter. When our regular men are away we sometimes select the bees at random, not knowing what their temperament is, and we have never had any trouble so far.]

We never have fed bees just before operating. It might and probably would have a quieting effect. To handle bees inside of a wire-cloth cage or in a lecture-room, it is necessary, of course, to use smoke in removing the wire-screen top of the box or nucleus. It is our plan to use a big dishpan. Into this we shake one or more frames of bees just as we do during extracting time. The bees are caught in the pan, when it is given a little shaking—not violently, but gently enough so the bees lose their colony spirit. They are then in condition where they can be scooped up by the handfuls. Right here it is necessary to observe caution. Our plan is to roll the bees into a ball by a manipulation of the pan, then cause the ball to roll on the hand. If this is done carefully, there will be no danger of stings. At other times one might scoop them up provided the movement is very gentle and cautious, *being careful not to pinch or crowd a single bee*. We have given some 200 or 300 bee demonstrations of this kind, and have never been stung once.

The next stunt is to dump a couple of handfuls of bees into a hat. Give the hat a little shake downward, taking the precaution to get every bee off the hat-band; then adjust the hat gently to the head. For this purpose a soft felt hat is better than a stiff one. The next stunt is to lift the hat off the head, and shake all the bees from the hat on to the head.

The next stunt is a little more ticklish. There will be no danger of stings providing the operator is cautious. The fingers of each hand should gently comb the bees out of the hair. The few that may be left after combing will gradually leave of their own accord.

Another stunt that we have indulged in occasionally is to put bees in the mouth and let them fly out one by one. But we would not advise any one to practice this stunt unless he knows himself to be practically immune to bee poison. We have never been stung more than once, and yet we have put bees in the mouth many a time.

In giving these various demonstrations we have stepped out of the cage and walked down through the audience. Sometimes we take along a frame of bees, point out the queen, the drones, and the worker bees. If the operator walks slowly down the aisles he can give every one in the audience a pretty close inspection of a comb of bees and the bees themselves.

We recently spoke before about 800 teachers at the summer school located at Wooster, O. A close examination of this frame of bees seemed to please the individual members of the audience as much as any thing. The very fact that the operator has bees on his head and a frame of bees in one hand seems to inspire confidence in the audience; for if the bees do not sting the operator they certainly will not sting the individuals in the audience.

It is usually our custom to tell bee stories while walking up and down the aisles with bees—tell how bees gather nectar; how many trips they have to make to get a pound of nectar; how they pollinate fruit-blossoms; how they sometimes rob from each other; how the queen bee is "introduced" to her subjects. While these things are commonplace to a

beeman they are exceedingly interesting to one who knows little or nothing about bees.

At the close of our demonstration we give the audience an opportunity, by means of little strips of wood, to have a taste of liquid honey and honey butter (candied honey). We also show samples of comb honey, queen-cages, introducing-cages, and other appliances for working with bees.

If one is "on to his job" he will be able to delight an audience, giving them a novelty such as they have never seen before. To be able to handle bees in the manner described, with bees on the head and shoulders and in the hands is profoundly interesting as well as startling to the average audience. We were never stung on any of these occasions except once, and that was when we borrowed an old stinking hat from a volunteer in the audience. It was the first one proffered, and so we could not well refuse it. When we dumped the bees into that hat, its odor seemed to rouse them into a frenzy. We had promised to put a hat of bees on the head, and so we had to "take the consequences." The bees resented being put into such quarters by giving us a number of stings. We took it all calmly, and no one knew the difference except one old farmer who came up shortly afterward and said, "Say, mister, was there one bee that stung you?"

"What makes you think so?" we answered.

"W-a-l-l, mister, you looked as if there might be one bee stinging you."

The fact was, the good wife pulled out, the next morning, something like thirty stings.

We go on doing these stunts, but have been careful ever since to use only our own hat or one that is reasonably clean.—ED.]

Sending Honey by Parcel Post Not Satisfactory; Two Queens in a Hive

I have tried an experiment with honey by parcel post. Two packages of four one-pint fruit-jars, each jar wrapped once with corrugated paper, stood on more such paper, in a heavy pasteboard packing-box that fitted so that only a few (two or three) crumpled newspapers could be crammed around and between jars and box, and covered with corrugated paper and heavy strawboard, all securely carded, were mailed, one for over 200 miles, the other less than 100. They were plainly marked "Extracted Honey," in large letters. Either package could have been thrown across the room without damage, for no jar would have hit any hard object. Result, two jars were broken in each package, effectually sweetening that lot of mail. I believe that, at least for the present, honey to go safely by parcel post must be in tin containers, with the covers well soldered on, and the whole boxed in one-half-inch wood. My two packages weighed just 11 lbs. each, the limit then.

Some one shut the queen in above the excluder accidentally. That hive grew to four stories before the bees quit flying out, and sent out a big swarm besides. When extracting time came we found only two bodies full of sealed honey, while the lower two had each a queen and the frames were full of eggs and brood.

Florence, Ala., Aug. 18. H. A. MOODY, M. D.

[Packages sent by parcel post must be capable of standing pretty severe handling. So far Uncle Sam has not eliminated the trouble arising from breakage. We do not believe that extracted honey, either in glass or tin, and much less comb honey, should be sent by parcel post, no matter how carefully it is packed. A small sample, say half an ounce or an ounce, when put inside a solid wooden block, will go through all right; but a pound or two is quite liable to be broken. For a further consideration of this question, see Straws in this issue.]

The queen that got above the excluder made it possible for another queen to be raised in the hive. During the honey season there may be one or more queens in a colony, providing they are separated by a perforated zinc; but as the season winds up they will all be killed off but one. Experience has shown that it would be very desirable if we could arrange to have two queens in a hive; for then it would be possible to have big colonies, and large colonies are the ones that gather the honey. If one queen should die suddenly, the other would be immediately available, and this would be quite an advantage.—ED.]

Producing Comb and Extracted Honey, and the Prevention of Swarming

As it is quite possible to control swarming with two nine-frame-story Langstroth depths, since the queen does not occupy half of the upper story with eggs, wouldn't a half-story of five-inch frames, nine frame size, on top of a nine-frame Langstroth-depth brood-chamber, and one or two comb-honey supers, answer the same purpose of swarm control? One shallow extracting-super and one comb-honey super would give a depth of about ten inches instead of the Langstroth extracting-size of $9\frac{1}{2}$ inches in depth. As I am a comb-honey producer I should greatly prefer the shallow extracting-super to the Langstroth extracting-super if it has the same power to control swarming, as it would leave me room for more comb-honey supers.

Chichester, Que., Aug. 1.

ALF. POTVIN.

[The shallow-depth super, if the combs were fully drawn, might do nearly as well. Indeed, it might be even better in a moderate honey-flow; but in a heavy honey-flow the combination of the extracting-super and comb-honey super, with foundation in the sections, would not be equal to a full-depth extracting-super with drawn comb for the prevention of swarming. One of the secrets of swarm prevention is *drawn* combs placed on the hive when the bees need it for room, and *before* they start building cells. The giving of a half-depth super of drawn comb and a super of sections might answer for a few days; but when the extracting-combs are fairly well filled, the bees might hesitate a little before drawing out foundation in the sections; and that hesitation might cause them to start preparations for swarming. The matter can be helped a little by lifting the super of extracting-combs when it is partly filled, and putting the sections under. But if the extracting-combs were old, the bees might darken the combs in the sections slightly. In using extracting-combs in connection with sections, the former should be almost new—clean and white.—ED.]

Preparing for the Next Season's Increase in September

My apiary of 125 colonies is located forty rods from our residence, with an orchard on the north and a building at the west, so that there is good protection on these two sides. The bees have always wintered well in this place, but I always make sure that each colony has plenty of stores and that they are in prime order in the fall. Last year I put 80 colonies in the cellar and had 45 packed on their summer stands for the purpose of making increase the following season.

Since keeping bees I have made my increase by selecting a strong colony having a young prolific queen of the previous season's rearing that has been tested long enough so that I know she is prolific. After choosing a number of such colonies for increase the next season I feed them during the month of September enough to insure brood-rearing until I have to provide second brood-chambers and combs to keep them from swarming. In the mean time I feed some of the colonies that I expect to put into

the cellar enough so that they will be sure to fill and seal five extracting-frames.

About the last week in September I take the upper brood-chambers off the prepared colonies and shake the bees in front of their hives and give them the extracting-supers each containing five combs of sealed honey, prepared for them as stated above. Then I put four quilts on top of the escape-board, then another empty super which I fill with very fine chaff. After this I fasten two-ply roofing-paper around the hive, with four cleats, allowing it to extend above the top far enough to put in some more chaff. Then I fold down the paper; and, lastly, tie a square of paper over all with a piece of cord.

Colonies so prepared winter safely and come out in the spring so strong that I can build them up to three colonies by the 15th of June strong enough to store honey in the supers. Bees thus treated seldom make any attempt to swarm, but will work nicely all the time.

Yorktown, Ind.

J. W. DAVIDSON.

Experiences of a Sixteen-year-old Beekeeper

I am only sixteen years old, but have kept bees for two years. Three years ago last fall my father bought a colony of bees in an eight-frame hive. In the following spring, when the bees had begun to fly, a beekeeper from a neighboring town visited us and showed us how to open the hive, how to inspect the combs, and how to find the queen. He also told us that we might expect the bees to swarm very soon, and advised us to purchase of him one of his twelve-frame hives, and transfer the bees into it, explaining that they would be less likely to swarm from such a large hive. But they evidently had contracted the swarming fever before we changed the hives, for they soon swarmed. A little later they cast a second swarm. We failed to hive either of these swarms, because we were not at home. Probably because they were weakened by excessive swarming, the bees failed to store any surplus honey in the super that year, though we took out two full frames of honey from the brood-chamber, and packed the two spaces on the outside with dry leaves, using division-boards.

The bees came out the next spring in excellent condition. My father, a little disgusted at securing so little honey, turned the bother of the bees, as he called it, over to me for the following year. I studied the A B C and X Y Z of Bee Culture through many of the long winter evenings, and soon had the "bee fever."

That year, 1911, was well known for its long dry spells. The beekeepers in this locality not only failed to get a surplus, but were obliged to feed their bees in order to keep them from starvation during the following winter. Many of the old-timers here were surprised when I told them that I had taken off ten pounds of section honey, and about twenty-five pounds of honey in frames, besides securing a fine swarm, and that I had left honey enough to winter the bees.

The next year, 1912, I secured 162 marketable sections of honey and 20 lbs. in large combs, all from my twelve-frame hive. My smaller colony came through the winter in bad shape, but built up in time to gather enough for winter, and a small surplus besides.

In my comparatively little experience I have found large hives to be the best. The bees seem to winter better, breed earlier, build up faster, and are stronger in numbers when the flow starts than the bees in smaller hives. I would rather have the twelve-frame hive, standard, than the eight or ten. There is less swarming, and what swarms do issue are large ones. Perhaps an older beekeeper could subdue swarming entirely with the hive I use. The only objection I have to the twelve-frame hive is that two bee-escape boards must be used side by side, instead of one, but this is a small matter. My super holds ten rows of sections, four in each. I

have used both the 4 x 5 and the square section; but I like the tall one better, and shall use it entirely next year. In the sections I use starters, but full sheets of foundation in the brood-nest in order to avoid drone combs. I gave most of my honey away, but sold some at 25 cents a pound, and cleared about \$10.00.

ADOLPH C. KROLL.

Northampton, Mass., March 10.

Why the Bees Die that Accompany the Queen

What causes the bees, accompanying a queen in shipping-cage, to die while being introduced? I have gotten of you three queens this summer. In the first case not a bee died. With the second about one-third of them died after the cage was put in the hive during the time the queen was being released; but the queen was all right so far as I know. With the third queen, about half the bees died in the cage after being put in the hive; and, fearing the queen would die, I released her. She was favorably received, but died inside of 24 hours. Have you had such experience?

Asheville, N. C., Aug. 2.

O. BROMFIELD.

[As a general rule a queen-bee will stand longer confinement in a mailing-cage than any of her attendants. Whether this is due to the fact that she is more vigorous than they, or whether it is because they feed her and thus use up their own vitality, we can not say. The probabilities are that bees in the hive during the interim of confinement feed the queen new honey when they would not feed her attendants. The candy in the cage becomes hard, and, unless usable to the bees, it might cause them to starve; while the queen, favorably received by some of the workers of the hive, would be lavishly fed. It is a well-known fact that the bees accompanying the introduced queen will die, as a general thing, before she is released.—ED.]

Uses for Propolis

Having occasion last spring to graft a couple of fruit-trees I got together my tools, but could not find the grafting-wax. After a search I found a lump about the size of a base ball. Being a little hard I warmed the wax, and worked in a little linseed oil. When the weather warmed I noticed the bees apparently helping themselves to the wax around the grafts, so I lightly touched it on top with a little carbolic emulsion that I happened to have left after treating cabbage and cauliflower for root maggots. Some weeks later, on looking through my tool-box I found a ball of grafting-wax intact. Then what was it I had used for grafting? Propolis, and it worked finely. Since then I have used it thinned down with linseed oil for painting wounds when pruning fruit-trees. It also makes a good tanglefoot for flies if warmed and thinned with molasses; then spread it on manila paper.

GEORGE H. BEDFORD.

East Stroudsburg, Pa., July 26.

Wintering in a Room Kept Cool with Ice

Although I am a beginner with bees, I will give here my experience in the past winter. I have six colonies which I have been wintering in a cooler used for butter in the summer. I placed the hives on a board about two feet from the bottom floor, and have left the entrance open the whole width of the entrance of the hive. The temperature has been around 28 to 30 degrees most of the time. The colonies all had a good supply of honey gathered from the field. Out of six hives I do not think that I lost over two quarts of bees that died from old age.

The cooler is cooled artificially, although in the fore part of the winter there was no ice in it. But about the middle of February the temperature was a little higher—about 32; so we got the ice into it,

and it then kept just 28 degrees for weeks. The room is 8 x 10 x 7 ft. There are four spaces between the outside and inner wall, lined with good building-paper. There is a cool-air inlet at the bottom, and an outlet at the top four inches wide by the whole length of the cooler, with a trap-door at the inlet and one at the outlet so as to open and close as the temperature goes up and down. The outlet from the roof runs up high enough so that there is a good draft. The inside of the cooler is always very dry.

Malone, N. Y., March 17.

J. N. VASSAU.

Another who Winters Bees in Cold Storage

I sold a colony of bees to Mr. Henry Schneider, of Pottstown, last fall. He is treasurer of a cold-storage plant, so he put the bees in cold storage in a room where the temperature is kept at 32 degrees. They weighed 56 pounds in the fall. He weighed them Jan. 4 to Feb. 24. They consumed 3 pounds of honey in that time. We took them out March 15. Then they weighed 49½ pounds. They came out fine and lively.

W. B. REITMEYER.

Pottstown, Pa., April 2.

[Wintering bees in cold storage is rather startling. In both the above accounts it appears that the air was fresh and dry. These experiments do not prove, therefore, that a temperature in a bee-cellar below 35 degrees does no harm.—ED.]

Queen rearing; No Difficulty in Getting Cells or Virgins, but Can't Get Them Mated Fast Enough

We have had no trouble to get the cells and to hatch the virgins; but when it comes to getting them mated, it's a different proposition. I notice in GLEANINGS where you say that your basswood apiary will produce 3000 queens besides its full quota of honey. I should like to know how you can produce and mate that many queens from a yard and still get its full quota of honey; for by any system of mating that we have used, we have always found that it takes considerable strength from the bees to make the nuclei and mate the queens. Do you still use baby nuclei? I thought I saw in GLEANINGS a while back where you claimed that the two-frame nuclei of standard size was the best, and that the babies were too small, troublesome, and fussy. Now, to take two frames of brood, bees, and honey from a colony here just before a honey-flow weakens it so it will not store as much honey as it would have by several pounds. I have had no experience with the baby nuclei; but if they're a good thing I might consider adopting them provided you could make them to dovetail in with the Danzenbaker hive. We have used mostly, to mate our queens, two frames divided off to one side of a colony with entrance in the rear; but it leaves the brood-chamber of the main colony too small, besides weakening it somewhat to get the nuclei started, and interfering with uniform storing in the super above. The best method that we have found to mate queens is in connection with increase, when we want to fill up empty hives. Just divide the hive half and half with one entrance in the front and the other in the rear, and put two frames of brood and bees and honey in each half with a ripe cell, or a virgin.

Now, I had thought that, if you could make us a combination nucleus mating and shipping box, of two and three frame capacity for the Danzenbaker frame, then that, together with our divided empty-hive system in connection with increase, might be the best systems for us to adopt. Then by one system we would be getting increase and queens, and by the other we would be getting salable nuclei and queen

We should like to know how you mate your queens so inexpensively, and also to have your advice as to

the baby nuclei, and how best to mate queens in large numbers, as we have been literally swamped with orders, and could have filled them all but for our mating troubles.

We should like to have a system of mating by which we could secure our full quota of honey, or nearly so, and still get our queens mated.

LATSHAW HONEY CO.

Carlisle, Ind., July 30.

[This subject of mating is a science or a trade in itself. In the first place, for the rearing of drones you must have queens *two* years old, of fine stock, and give them drone comb every now and then. These colonies should never suffer from want of stores; or rather, we should say, after the season for honey coming in stops they should be fed *gradually* and *continuously*, otherwise the bees will kill off the drones. A drone-raising colony is a good deal like a cell-building colony—both must have a continuous supply of nectar or a syrup. For feeding we use about two parts of water to one of sugar in a Boardman feeder, all the holes soldered up except one or two.]

With the twin baby nuclei you can mate more queens for a given number of bees for a given amount of help than from the same number of full-sized two-frame Langstroth nuclei. It is less trouble to introduce virgins to the small number of bees; takes less time to find the queens, and less food or syrup to take care of them. But one trouble with the baby nuclei is that queens must be taken out as soon as the queen begins laying. Unless you can have your orders regulated to come in just as fast as you can raise the queens, you must arrange to have the queens as fast as they begin laying in the baby hives kept in larger nuclei. This is so inconvenient that many queen-breeders prefer full standard Langstroth frames, two in number, for a nucleus.

We do not believe it practicable to make a combined nucleus and shipping box, as their function is so entirely different. For your purpose we think it would be more satisfactory for you to have two-frame nuclei, either in a single box or two nuclei in an eight-frame hive-body with a close-fitting division-board between. The entrances should be at the opposite ends of the hive. Such nuclei have the advantage of combined heat, and will hold the queens until you can use them for orders.

You might find it a little more satisfactory to come here for a day or two and talk with our men. We have no trade secrets but that we are willing to give to the public, and should be glad to see you or any of you at any time.

We use both kinds of nuclei for mating queens—the twin babies in the yard where we raised queens only, and the full-sized two-frame Langstroth (two in an eight-frame hive with a tight-fitting division-board between), at our other yards where we raise queens, nuclei, and bees for pound packages. The full-sized nuclei can be used for the nucleus trade, and sometimes they will furnish one pound or half a pound of bees. In good seasons the nucleus frames at our yards are extracted, as queen-rearing operations can not go on in a nucleus where the queen is honey-bound. When the baby nuclei get overfilled with honey we take out one frame of comb and put in an empty one and hold the filled one as a reserve, to be used when needed later on.

You do not understand how we can get honey from an apiary where we are raising queens from baby nuclei. Easy enough. The cell-builders and other colonies held in reserve for cell-building purposes must be strong. Such colonies will produce honey the same as any strong colony. Some years, like this season, it is not necessary to feed them any appreciable amount. This season honey began coming in almost from the time of fruit-bloom to the close of sweet clover, which is usually our last

supply of nectar. Cell-builders will swarm unless they are kept down by extracting, and hence the colonies at our basswood apiary were extracted. They were thus able to produce their full quota of honey.—ED.]

The Cheapest Way to Ship Bees Long Distances

I have about 100 colonies of bees; and as I can not sell them here for as much as I can get for the honey that is in the boxes I am taking the honey from them.

I am going to move back to Pennsylvania, and thought it possible to save the bees and express them through. My idea is to make a box, say about seven feet long, out of light material, and divide it into about 18 compartments, five by five inches; put in a pound section of honey for the bees to feed on, and put the queen with, say, two or three hundred bees in each compartment. On arriving in Pennsylvania I contemplate purchasing enough bees to take some racks and put in the new boxes in which I place my bees when taken out of the box in which I ship them. Of course I shall expect to feed the bees through the winter.

Hamilton, Mont., Aug. 8. C. A. MARKSBURY.

[Your plan of expressing bees back to Pennsylvania in long boxes we do not think would be practicable. You would have difficulty in uniting them to other bees on arrival in the East. Would it not be better for you to advertise your 100 colonies at a low price, sell them if possible, and take that money to buy bees in Pennsylvania when you go back? Your express on such packages of bees would be considerable; and our experience convinces us that many if not most of the bees would be dead on arrival at destination for this reason:

Combs in the sections will not stand hard banging; and the result is that they would be broken out and many of the bees in bad shape. It would be much more practicable for you to shake your bees into 3-lb. packages, as was illustrated in GLEANINGS in the April 15th issue. We have had phenomenal success in shipping bees this way, but found it necessary to use a bottle of water in connection with the candy.—ED.]

Early Cutting of Alfalfa Means Less Tonnage of Hay

The reason that the farmers of Colorado cut their alfalfa before blooming is because their customers, the dairymen, want it that way, claiming it is a better milk-producer when cut before it blooms. No doubt Mr. Turner could induce some of his neighbors to let their alfalfa go to bloom by paying them to do so. Cutting alfalfa before it blooms gradually reduces the tonnage, and eventually kills the plant altogether.

Glenrock, Wyo., Aug. 22. J. E. HIGGINS.

Wintering Surplus Queens in Nuclei

I find it a good practice to winter over a number of nuclei to provide for any loss of queens that may occur in the apiary; and if there should be no such loss, these nuclei serve a good purpose in strengthening up weak colonies in the spring. They are nice, also, for mating early queens, or they may be left to grow into strong colonies for the buckwheat flow. Ithaca, N. Y. E. L. DRESSER.

The Connecticut Foul-Brood-Inspection Law

I have read your editorial note regarding our apiary-inspection bill. The original bill asked for an appropriation of \$1500 annually, but this was reduced one-half by the appropriation committee.

New Haven, Ct., July 30. W. E. BRITTON.

Our Homes

A. I. Root

Know ye not that your body is the temple of the Holy Ghost which is in you?—I COR. 6:19.
Wash ye, make you clean.—ISA. 1:16.

KEEPING THESE GOD-GIVEN BODIES OF OURS
IN GOOD REPAIR.

Terry and I have a pleasant challenge, one with the other, as to which one will live to be a hundred years old. Now, we are both professing Christians; and in our teachings, if we do not honestly own up when we get sick, we shall not be living up to our profession as health teachers or as followers of the Lord Jesus Christ. Doctors and professional nurses, if they wish to be consulted as authorities, ought to be very careful about getting sick. If my good friend and neighbor Terry should get sick down would go his teaching, or at least they would go down a little way. Of course, he does not charge any big fee for his instructions, and, in fact, he does not charge any thing, so all his healing is, to a certain extent, like that of the great Master, who did his work when on earth "without money and without price." Terry must *not* get sick; in fact, I have felt sure the great Father would indorse the great truths Terry is giving us, by giving him health. Well, with this preface I have made another great discovery. It may be new to some of you, at least, as it was new to me.

To be honest, I do have spells of indigestion; and I had such a spell lasting several days in July. I first cut off every thing sweet. Then I tried going a little hungry; but the fermentation in my bowels did not let up until I had several meals of pure lean beef on the old Salisbury treatment. This got me in better shape, as it always has done. But still I had the bad taste in my mouth when I got up in the morning. When my digestion is real good my mouth is always sweet and clean—like a baby's, for instance. Perhaps one who is 74 years of age can not expect his breath to be as sweet as that of a baby; but I think it ought to come somewhere near it.* Well, when my teeth needed some repairs I at once went to a dentist. If we are going to chew every thing until it is liquid or semi-liquid we must have good teeth. This dentist is a

new one, or new to me. He is a young chap, and I think he is pretty well up to date. The first thing he said when he looked into my mouth was, "Mr. Root, when did you clean your teeth last?"

I replied, "My good friend, I am ashamed to say that I forgot to clean them, as I fully intended to do, before I started to come here; and, to tell the truth, I am afraid it is some little time since I gave my teeth a good brushing." Mrs. Root keeps scolding me, and usually brings me my tooth-brush, tooth-paste, and a dish of water on Sunday morning before I go to church, saying that I ought to clean my teeth at least every Sunday morning since I insist on refusing to clean them once or twice a day. Well, the dentist went on to say:

"Mr. Root, I know you will excuse me when I tell you that, if you let your teeth go in the shape they are now in, it is a wonder if you do not have indigestion. The matter collecting in the cavities in your mouth you can not very well get out with a toothpick. It will begin to ferment over night; and if you chew your food ever so well at your breakfast next morning, this matter from the teeth is mixed with it, and will keep up the fermentation in your stomach and bowels. If you wish to preserve your health, and live to be a hundred years old, as you and Terry have talked about, you must clean your teeth thoroughly every day."

Dear friends, I want to make two apologies right here. James enjoins us to confess our faults one to the other; and while I am ashamed to make the above confession, I think that, under the circumstances, it is my duty, and that it will do good all around.

The other confession is (and I wish to include an humble apology to my young friend the dentist), all at once Satan put it into my head that this dentist, perhaps, had tooth-brushes, tooth-powders, or tooth-paste for sale. I had been to two different dentists and paid them quite a little money within the past year, and neither one of them had said a word about my unsanitary teeth. I said, "My good friend, do you sell tooth-brushes or tooth-paste?"

"Nothing of the kind. You can get the best up-to-date implements for the care of the teeth at any of the drugstores."

Somebody has been mean enough to insinuate that dentists would lose a chance of getting jobs (with big pay) if they, like our physicians, should be too vehement in urg-

* Should God in his loving providence permit me to reach the age of eighty or ninety, I am hoping and working and praying to be able to keep clean, pure, and sweet, in body, mind, and spirit. I fear old people oftentimes get to be careless about their dress and personal habits, etc., just as I have been careless about my teeth. I have been scrubbing my body daily, from the top of my head down to my toes, but forgetting, ignoring, and overlooking the teeth and mouth—the "gateway," as we might call it, of every thing taken into the stomach in the way of food to keep up that "storage battery" of health and strength.

ing that "prevention is better than cure." Let us now go back to that bad taste in my mouth.

I think I have mentioned that, in eating my apples, I greatly enjoy a little bit of cheese—say half an ounce. Well, when I had that severe spell of indigestion, each morning when I awoke I could still taste the cheese in my mouth. I told Mrs. Root that I believed this had something to do with my spells of indigestion, and that I would try dropping off the cheese and eat only apples. Well, it did stop the "cheesy" taste; but there was still a bad taste in my mouth that I knew was not right. Now, what do you think? When I ate the cheese, even though I chewed it until it was almost liquid, it got between my teeth and remained there all night, and, of course, it resulted in a bad cheesy taste in the morning. I hope you will excuse me, dear readers, for going over this matter so much in detail; but my "great discovery" comes in right here. I went to the druggist and got the best up-to-date tooth-brush he had. Then I got the very best tooth-paste, and followed directions. I ate cheese, all I wanted, with my Red Astrakhan apples—seven or eight good big-sized ones—and I can honestly say I never enjoyed any food more in my life. I never enjoyed the most elaborate dinner more than I did those Red Astrakhans and Yellow Transparent apples. Before I went to bed I scrubbed my teeth and mouth most thoroughly. The next morning there was no bad taste whatever, and my digestion now is just perfect. I can eat raw tomatoes with sugar, pepper, and vinegar, or with sugar and cream for dinner, and they do not trouble me a bit. I eat peas and beans in moderation, and green corn; and I am satisfied that at least a great part of the improvement has come from thoroughly cleansing my teeth and mouth, finishing up with plenty of pure soft water.

May God be praised for our dentists and physicians who are not only able but willing to speak the plain truth when caring for these bodies of ours.

Let us not be weary in well doing; for in due time we shall reap if we faint not.—GAL. 6:9.

I have been reading the Home papers with great interest this past year; and as I need some advice I thought perhaps you could help me.

My father was a beeman in Barry Co., Mich., and took GLEANINGS as long as I can remember, and I used to read the stories written by "Rambler," with great interest when a small lad.

When I was twenty I started for myself and hired out to work on a farm for a neighbor, for, like most boys, I thought my own father's business was not as good as that of some one else. I had no bad habits; and as I got good wages I soon saved enough

to make a first payment on a little farm, and soon had some stock, chickens, and bees. I was thrifty, and every thing turned into money that I took hold of; but I was very discontented in living alone; and as every one kept telling me I ought to get a wife I soon grew to think so myself. I gave my heart to God, and have tried to serve him in my every-day life, and I don't know that I am doing right in writing this, as he has never failed me; and as I have never yet gone hungry I have no proof that I ever shall.

But to go on with what I started to tell you. I had almost paid for my little farm when a cousin came to visit me from the East, and wanted me to go back East with him and see some of the world; so, as I had a chance to exchange my farm for a cheaper one that would put me out of debt, and give me a little to the good, I made the deal, sold all my personal property, and went to New York. I liked the East, and decided to buy a cheap farm in New York; but when I came to sell the farm I had in Michigan I found that the title was not good; and as the party who gave me the deed had been dead for some time I had no redress and lost one thousand hard-earned dollars. I then had left only about two hundred dollars, and I decided to hire out to a dairy farmer, as they pay the best wages in the East. I think I overworked a little, for by the middle of September I was sick in bed under the doctor's care; and when I got out the doctor said I must not work at hard work for some time. This took all my hard-earned summer wages, and I was not in shape to work at dairying any more. I always thought I should like the jeweler's trade, so I began to repair clocks and watches. In the mean time I met and married my wife; and after buying our furniture I had very little left out of a declining bank account.

Last August there came twin boys to our house; and through the expense of sickness I have used all the small bank account, and have to get along on what I make from day to day. I now have the trade very well learned, and a very good line of tools; but this town is too small to keep a jeweler, and I have no cash to move to a larger town.

My chickens are doing fine, but I have only a small flock.

There seems no way for me to get where I can stand on my feet, to use a common expression, and I do not see my way clear in the future. Although I am not in debt to any one, I am just to the end of my cash and very little work. As you used to work at the jeweler trade, and have had a wide range of experience, I thought perhaps you might have a word of advice to offer.

Trusting that God will direct you to give me the proper advice, I am yours cordially,

New York.

F. S. C.

After going over the above letter several times I decided that this thing that got our friend into trouble—that is, if he really *is* in trouble—is the habit of becoming discontented. His losing his farm because the title was imperfect points a moral. When you buy property, have some competent attorney examine the title, in order to be sure it is all right. My opinion is (without consulting an attorney) that his title could have been made good, even though the one he bought it of was dead. Of course, circumstances might prove otherwise. Our friend did a very wise thing in getting married, and I think, also, the great Father above "did a wise thing" in sending the twin boys to that humble home. Below is my reply to his letter. I decided to put it

in print because it may encourage others who are situated in a similar manner. Do not be in haste, dear friends, to think you can improve your condition by moving to some other place.

My good friend, while I thank you for the high compliment you pay me in deferring to my judgment, I fear I may not be able to give you the advice you need. First, I am glad to know that you fear God and are trying to keep his commandments; and if you make it a matter of prayer as to what you shall do, I am quite sure you will be directed right.

Yes, the greater part of my life was spent at the bench. When I was climbing down the ladder after putting up my sign as watchmaker and jeweler, a man gave me a job, and I have never been out of work since. One reason is that I would repair any thing, or do any thing to help needy people. I tried hard to make myself useful to humanity. Now, if you are in a small town I feel sure if you try earnestly to do every thing faithfully that comes in sight to help your fellow-man you will find plenty to do, and ultimately get your pay. A great many times I know I spent perhaps hours at a time, and didn't feel that I could conscientiously charge what the job was really worth, especially for something that belonged to poor people; but that sort of work paid eventually. I got a reputation for being reasonable, and being Christianlike in making my charges. In a little while I had to hire help, and this thing has been going on for sixty years. Sometimes I feared I was reckless in trying to help people; but my reward came sooner or later.

Ask your wife if I am not right in thinking you should stick to your trade, where you are. With the help of the chickens, I am sure you will get enough to do, and will be better off than if you think of changing your location.

A. I. ROOT.

GOD'S KINGDOM COMING: DOUBLING UP THE COUNTRY CHURCHES.

We clip the following from the *Cleveland Plain Dealer*:

A PRACTICAL EXAMPLE.

In an effort to make rural churches unite, to the increase of their membership, economy in church management, and the financial advancement of their pastors, a monthly magazine is collecting statistics as to the number of churches in small towns. The investigators have taken two widely separated States of the Union as a field for their work, and the figures are interesting and suggestive.

Almost every little village that could support one church comfortably has from three to five which only by a stretch of the imagination may be said to be "supported" at all. A handful of people in each edifice, a hopeless, poverty-stricken preacher, a treasury with the minus sign in front of it—these are common conditions.

That such conditions are not irremediable, however, has been shown by a little town in Missouri; and the attention of these investigators might well be directed to that little town. Its name is Alma, and it is to be found only on the largest maps, for its population is only 319. Yet, not so very long ago, Alma was struggling to support four churches. These congregations were Methodist, Baptist, Presbyterian, and Congregational. Last year they just got together and agreed to bury their sectarian differences. They united in one congregation, chose the most convenient church edifice, and hired a minister to preach the gospel to them.

They are doing well in that church, they say. New members are baptized by whatever method they may prefer. Old members are not required to resign their allegiance to their own creeds or articles of faith.

Doubtless the brethren do not agree on certain doctrinal points, but they dwell together in unity for all that. Nobody's theological toes are stepped on, and they are out of debt, and their pastor has a living wage, promptly paid.

"A little child shall lead them," says the Scripture. Perhaps little Alma may yet lead the two and seventy sects into the unity that has been the dream of many Christians.

I read the above with much interest, because in one of my wheel-rides a few years ago it was my privilege to pass through the little town of Alma, Mo. I wonder if some good brother or sister who lives in Alma or somewhere else can tell us what they call the new church that was made up of Methodists, Baptists, Presbyterians, and Congregationalists. I have seen several attempts of this sort, and down in Florida they have been quite successful. The only difficulty was in deciding on the name. I think in one case they called this the Union Church. May God speed the work of doubling up.

REMEMBER THE SABBATH DAY TO KEEP IT HOLY.

The following, which we clip from the *Sunday School Times*, explains itself:

WILBUR WRIGHT'S ANSWER.

Today is a sabbath unto Jehovah.—Ex. 16:25. The Wright brothers, the famous aviators (of whom one died in 1913), are clean-limbed and clean-minded. From their father, good old Bishop Wright, they inherit two sterling traits—character and a shrewd business sense. When Wilbur was at the high tide of his first foreign success, and was acclaimed everywhere as "the emperor of the air," the king of Spain came to see his machine. An orderly approached and said, "His Majesty would like to see you fly." "I am very sorry," was the reply, "but we never fly on Sunday."

It is especially interesting to me, because I was so well acquainted with our good friend Wilbur Wright, his father (Bishop Wright), and the rest of the family. God grant that we may have at least a few men left who are not afraid to stand up before men, even kings, and confess their respect for God's holy word.

"PEACE ON EARTH, GOOD WILL TO MEN."

We clip the following from the *Commoner* of May 23. Can not the readers of GLEANINGS give it a hearty amen?

THE NEW DREADNAUGHT.

"Ever since the earliest days men have been building ships. They are still building them; but the ship we are planning is different from the others. Its compass is the heart; its shells carry good will; its missiles are projected by the smokeless powder of love; its captain is the Prince of Peace. I ask you all to drink with me to this new battleship—the ship of friendship. No target can withstand the shots that friendship sends abroad."—Mr. Bryan's toast to the "Ship of Friendship," in bidding good-by to the foreign peace delegates at the John A. Stewart breakfast given in Washington, May 18.

High-pressure Gardening

BARREN CORNSTALKS, ETC.

Just now the whole wide world is interested in eliminating the *hen* that does not lay eggs and the cow that does not give her share of the milk, etc. On page 578, Aug. 15, I have given you a glimpse of my patch of sweet corn. Well, during the severe drouth during the fore part of August our two cows gnawed down their pasture lot so that it was very desirable to give them some green food to keep up the flow of milk; and as their pasture lot was close up to the sweet corn I began cutting out the stalks containing no ears. There were three if not four varieties of sweet corn—Golden Bantam, Black Mexican, and Stowell's Evergreen. Almost every stalk of the Golden Bantam contained one or more ears. But with the two others I found one and sometimes two stalks, quite often, in a hill, with no ear on at all; and I went over the whole patch, cutting out these useless stalks. One reason why I took the time and pains was because I wanted to study the matter. First, I decided the barren stalks were mostly found where there were four or five stalks in a hill, indicating too heavy seeding. But this does not explain it all. Owing to the bad weather I have mentioned, there were many hills with only one or two stalks; and several times when there was only one great stalk in a hill, ten feet high or more, there was not an ear of corn nor a sign of an ear. I think I may safely say that in that patch of sweet corn ten per cent of the stalks were barren.

I once heard Professor Holden say in an address that your seed corn should be grown and saved in a little patch by itself, and that you should take great care to cut every barren stalk before the tassels could shed their pollen. In other words, he claimed that these barren stalks were the result of letting barren stalks stand in the field the generation before. Now, if this is true it is an exceedingly important matter. I have for years gone through our cornfield and selected my ears for planting. A neighbor of ours who got some of our seed corn because his was poor, said he got 49 healthy plants from 50 kernels of corn that I furnished him. Now, this is all well and good; but what is the use of having corn that will grow if ten per cent of the good thrifty stalks bear no corn? And if Mr. Holden is right, we can not afford to get our seed corn out of any cornfield. Our seed must be grown in a piece of corn remote from other cornfields, with the barren stalks or barren tassels carefully cut out. It is too

late now to do any thing this year; but shall we not make careful preparation to have some seed corn next year that will produce one or more ears on every stalk? A neighbor of mine has just told me that he found more barren stalks in the field this year than in any other season he could remember. Is it possible that the cold and unfavorable weather at planting-time had something to do with it? Of course, the above refers particularly to the saving of seed for field corn. I believe the Boys' Corn Club has been discussing this very matter; and these boys are more careful than their fathers have ever been to have the very best seed that care and skill can furnish.

Later.—Since the above was dictated I have been out among our field corn; and the stalks with no ears are not any thing like as frequent as with sweet corn in the garden. In fact, I do not think there are more than four or five stalks in a hundred with no ears on. Where there are too many stalks in a hill the few spindling stalks are apt to be without ears; but this shows plainly that it is the result of overseeding—too many stalks in a hill. But in our sweet corn several times I found four great lusty stalks in one hill, and almost nothing in sight to indicate where the ear ought to be. I think it must be the strain of seed, for our Evergreen sweet corn is worse in this respect than any other one of the three kinds planted on the same piece of ground. Another thing, the field corn this year was planted with a drill, aiming to get a stalk of corn about once every foot. Perhaps such planting would give fewer barren stalks than three or four stalks in a hill, say four feet each way; but by the latter plan, when cultivating both ways we find it much easier to keep out the weeds—that is, much less hand work is required.

SELECTING THE SEED CORN.

The above reminds me that, about the time this reaches our readers, they will need to be selecting corn for planting next year. Do not listen to the old farmers who insist that you pick your seed corn out of the cornerrib. A man of experience may, I grant, pick out better ears simply by the looks as they lie in the crib; but neither he nor any one else can tell by looking at the ears the circumstances under which they were grown. The following, which we quote from the North Carolina Bulletin on the Selection of Seed Corn, touches the point:

Go through the field, row by row, marking those stalks which come nearest your ideal, remembering that if a desirable plant is anywhere near a barren

stalk or one of decidedly undesirable qualities to leave that plant unmarked, because it is in "undesirable company," and has become contaminated.

Probably you think this will not pay. The Corn Club boys think it will pay, and are proving it by growing three and four times as much corn per acre as their fathers.

Later.—The *Ohio Farmer* for Sept. 6 has a most excellent and timely article on selecting seed corn.

They suggest that the ears for seed should be selected before the corn is per-

fectly mature. Go through the field as has been directed; and when you find an ear with environment and every thing else according to your ideas, break down the tassel just above the ear. This is quicker than tying a piece of cloth about the stalk as I have suggested. Then just before the corn is cut (or, indeed, it may be done while husking, providing you have some careful men who obey orders) sort out and preserve these selected ears.

Health Notes

HEALTH FOODS, CEREALS, ETC.

My good friends, how many different kinds of cereals and health foods do you suppose there are on the market in the United States? Well, in my hand I hold a report from the Connecticut Experiment Station in regard to food products and drugs. They enumerate something like one thousand different kinds of flour, cereals, health foods, etc. Among other things there is quite a good-sized list of diabetic foods. In fact, I do not know but half of them are special foods for the treatment of diabetes. Now, this report is entirely unbiased. No one can well maintain that this Connecticut station is prejudiced in its reports and statements, and the report is just about what I expected.

While many of these health foods are really good and wholesome, the price is in almost every case excessive and often exorbitant. Let me say again what Terry and I have so strongly urged: Get some good nice wheat directly from the farmer, just after it is thrashed. Then have a little hand mill, or, better, one run by power if your family is large enough, and make your own graham flour, cracked wheat, etc. This health food, direct from "producer to consumer," is more wholesome, I do believe, than any thing else you can find in your stores and groceries; and you can easily tell how much cheaper it is by weighing the grocery cereal and then weighing the wheat and counting the cost. Now, aside from the matter of cheapness, a great part of the health foods are not at all what is claimed for them in the advertisements. The gluten breads and gluten meals, some of them, are really not suited for a diabetic patient; and when you come to the so-called meltose syrups they are no better than maple syrup or good honey, while the cost is ever so much more. Macaroni, noodles, etc., are probably wholesome enough, but they are tremendously expensive compared with cracked wheat. Terry buys his oatmeal, etc., in quantities, and gets them at very

low rates. You can buy oatmeal by the hundred pounds at a very low figure indeed compared with what you pay at the groceries when you buy it in embellished paper packages. For an illustration, the breakfast foods to be found in our groceries cost from 12 to 65 cts. per lb.; and the farmers who grow the wheat get from 1½ to 2 cts. per lb.; and the wheat just as it comes from the farmer's field is ever so much better to sustain health and strength than any wheat product you can buy, that has gone through the mills to make it into flour, etc. Nuts are a good and wholesome substitute for meat; but the nut preparations on the market cost awfully compared with the expense of grinding the nuts in this same little hand mill. Allow me to copy a little. A manufacturer of malted nuts claims as follows:

Cow's milk is an excellent food for young calves, but it is a very poor food for a human infant, and still less adapted to adult human beings. Thousands of persons have discovered for themselves its unwholesome properties. Malted nuts supplies the place of cow's milk as a liquid food. Its composition is similar to that of milk.

In regard to the above, this bulletin says:

Its composition is not "similar to milk," even considered on the dry basis, as it contains much less protein, fat, and ash, and much more carbohydrates than dried whole milk. Such extreme and unfair statements regarding such a useful food as milk should not be allowed to pass unchallenged.

This food bulletin contains about 100 pages in regard to false claims for foods and drugs put on the market for sick people; and it is altogether a tremendous protest against the fashion of "robbing sick people" by holding out extravagant claims for special food products and drugs, including various wines.

TRUE SCIENCE VERSUS SUPERSTITIOUS NON-SENSE.

There are a lot of old people who probably will never give up their notions about planting things in the right time of the moon, about Friday being an unlucky day, the No. 13 hoodoo, nailing up a horseshoe to

bring good luck, and a whole lot of other things along that line. These good people, honest as the day is long, do not seem to be able to distinguish between true science and nonsensical notions. Just a few hours ago a man whom I have known for years attempted to show me how a peach-tree crotch enabled him to find water. As he walked along over the ground the switch would turn down at certain places. I insisted that it turned because he twisted it with his wrists. But he declared that the crotched stick was what made his wrists twist, and he may have been honest about it. But now listen: When asked why it would not work the same way in *my* hands, he said it would not work with everybody. When I asked why, he said there is more electricity in some people than in others; and this seems to be a widespread notion among many of the older people. Our boys and younger men who are getting to be experts in electricity would laugh at such an idea. It is true that you can put more electricity into one man than there is in another by standing him on a stool with glass legs; but while he is standing on the ground the electricity very quickly seeks an equilibrium. Then this man explained to me how a switch would go down just three times and no more until he changed his position. Then he would do the same thing again when he crossed an underground stream.

I wonder how many of our readers remember the planchette board that made such a stir in the year 1868. Many good people declared that the senseless piece of wood would spell out words. In the same way many good people insisted that the forked stick goes of itself because they unconsciously twist their wrists. Now listen to something more this man told me. He said he could tell the exact number of feet we would have to dig to get water. He does this by setting a tumbler of water on the ground, and hanging in it a button suspended on a thread inside of the tumbler. Pretty soon the button will commence swinging—that is, if the “water-witch” has hold of the string. It will then bump up against the tumbler just the number of feet one will have to dig to get to the water. And then he told me that just recently the button bumped 62 times, and the man found a bountiful well of water by digging *exactly 62 feet*.* When he attempted to explain that electricity did it, the subject suggested what I am now writing—the strong contrast between real science and humbug science.

* It occurs to me that it must be the “spirits” that make this button pound out the number of feet down to the water—the same spirits, perhaps, that used to pound out answers by means of “spirit rappings” in 1852.

In real science certain processes take place or work exactly alike in the hands of *any* experimenter. God’s agencies are “no respecter of persons.”* Edison has achieved wonderful things by careful study and experiment; and the lines of science are well laid down and established.

As there may be many good friends among our readers who still insist that water-witching is real sense and science, let me explain that some years ago the Department of Agriculture at Washington took the matter up. A number of scientific men went into a field with some of the most skilled water-finders or water-witches, as they are called. Among other tests they tried blindfolding the man to see if he could locate veins of water just the same when led over the route, and he failed, of course, to find where the former stakes were stuck. The two records did not agree at all. The stakes set by the blindfolded man had no relation whatever to those set with his eyes wide open. My recollection is that the greater part of the water-witches decide that, for some unknown reason, it would not work with a blindfolded man; and one good old man came out frankly and acknowledged that he had been deceived all his life in thinking the switch turned down of itself. We can forgive him, even if he had taken money for many long years for locating wells. But another chap, with a different kind of conscience, on another occasion managed to push the bandage out of the way a little so he could get a glimpse of where he was going. Of course the stakes he set tallied. When, however, he was blindfolded in such a manner that such a thing was impossible, he too had to own up that it would not work when he could not see.

The question has often been asked if the switch would turn when walking over a bridge where there is a stream of water. But I think they generally agree that it would not work then. The water must be under the ground.

The way in which people get into ruts or get senseless notions into their heads explains the success of the shameless frauds called electropoise, oxydonor, oxypathy, oxygenator, etc., and the various other things that have been invented for something that has not a particle of sense or science about it. Carrying a lucky stone in your pocket is along the same line. Recently a subscriber sent me a glowing circular with hundreds of testimonials, apparently, of a finger-ring that will cure rheumatism. If the testimonials are not all manufactured, they come from foolish people who imagine the rusty ring wrought

miracles in the way of cure. I hope it is true that the coming generation will not be as easily humbugged by such quacks and absurdities. Educated men and women, and educated girls and boys, at least the

way they are being educated at the present day, as a rule demand sensible reasons before they invest in something that pretends to be scientific when it would not even bear the scrutiny of good common sense.

Temperance

THOSE PICTURES; OUR GOOD FRIEND DOOLITTLE TALKS TO US ABOUT THE PARTNERSHIP EXISTING BETWEEN THE UNITED STATES AND THE SALOONKEEPER.

Dear Mr. Root:—By a strange coincidence I was reading in the semi-weekly *Free Press* the internal-revenue statistics for the fiscal year ending July 1, 1913, when the issue of *GLEANINGS* for August 1st came. I picked out *GLEANINGS* from the other mail, and read the editorials, *Stray Straws*, and then turned to *Our Homes* and the Temperance department, as is my custom. Those pictures took my eye at once, and I said, "How true to life!" Then I turned to the statistics in the *Free Press* (not a temperance paper), and read these facts: "The people of the United States consumed more whisky, brandy, and beer, and smoked more cigarettes and cigars than in any previous period in the nation's history. The returns show that the government received from drinkers and smokers in taxes, \$309,478,000 in the past year—an average of about \$1,000,000 for each working day in the year, or \$16,500,000 more than during the previous fiscal year, which paid about half the government expenses." Then I turned back to the pictures again, when that saloon front riveted my gaze. I asked, "Whose is that saloon?" and the only answer I could find was, "The government's." The building, bottles, liquors, and tobacco may or may not be the saloon-keeper's, but the saloon belongs to the United States government. Let the saloon-keeper try selling those liquors without a permit from the government, which is called a *license*, and see how quickly he will "look out from behind the bars." So we have this: \$25.00 paid for a license establishes a *government saloon*; \$1.10 tax procures from the government a gallon of whiskey; \$1.00 a barrel of beer; this in addition to the cost of production of the liquors. And none of that \$309,478,000 could come into the treasury of the government without some one to sell these taxed and licensed articles.

Now, Bro. Root, is it not plain that the *saloon-keeper* is a necessity in the economy of these United States if you and I are to have "half our government expenses" paid? And is it not also plain that the officials in whose hands this matter of tax and license rests should seek out and urge men to sell, buy a license, and pay the tax, that this revenue may come to us and the rest of the people of this United States? Your company would not hire a man to sell honey unless he sought out customers for that honey. And after the saloon-keeper has paid his license and tax to the government, is he not doing a legitimate business in branching and reaching out that he may get his money back and something for a living? Should we not be willing that he do this when he is so useful to us in paying half of our government taxes? Seriously, Bro. Root, I do not like to see that bright boy in these pictures turned into "The Finished Product," but of late it has looked a little out of place for you and me to be "pounding" the saloon-keeper when, at the same time, we are willingly or ignorantly receiving pay to the half of our proportion of the government expenses through the efforts of the saloon-keepers of our land. If we are honest we must acknowledge that the saloon-keeper fills a niche of no small importance in the economy of the United States government. Surely, from the statistics for this last

fiscal year the revenue from our government saloons almost overshadows that from the tariff and custom-house. Are you equal to some plan to save the boy without materially injuring the amount of revenue we are receiving into the government treasury?

Borodino, N. Y.

G. M. DOOLITTLE.

Friend D., I have a plan—yes, and may God be praised that there is a plan open to us all. The plan is to teach our boys and girls, our old men and women, to "seek first the kingdom of God and his righteousness," and then that "all things shall be added unto you." Yes, those who administer our government and our laws should be taught that, if they will seek first God's kingdom and his righteousness, plenty of money for "revenue," and every thing else will be surely forthcoming.

ONE-THIRD OF THE SALOONS OF OHIO TO BE PUT OUT OF BUSINESS.

We clip the following from the *Wheeling Advance*:

"Law closes 3341 saloons in Ohio; leaves 5144 still doing business."

The above seems too good to be true; but when they come to put on their spectacles and find 5144 saloon-keepers of good moral character I imagine there is going to be more trouble yet, especially if the law is to be strictly enforced, in big cities as well as little ones, as our good Governor declares it shall be enforced. See the following:

SUNDAY CLOSING OF THE SALOONS IN OUR LARGE OHIO CITIES.

I am well aware that it is not a new thing for the brewers and liquor party to make great promises about the "cleaning up" and "law enforcement" they are going to inaugurate. Our readers will also recall what I have said about the efforts of the Baptist Brotherhood to enforce law in Cleveland in regard to Sunday closing. Now, once more please keep in mind that the Governor of Ohio has favored a license law. He thinks it will be a temperance measure; and as he has been most severely criticised on this account he comes out just now in the *Cleveland Plain Dealer* as follows:

"So soon as the State Liquor License Board announces the appointment of county licensing boards I am going to call every county license commissioner to Columbus and talk straight from the shoulder to them," said the Governor.

"First of all, I am going to tell them that the first one of them that permits a violation of license law without taking action against the saloon-keeper who has broken the law will lose his own official head. The law is plain. A saloonkeeper may have his license revoked on a second conviction.

"In regard to Sunday closing, my position is this: The success of the whole license system depends on its enforcement. The people of Ohio expected it to be enforced. Every saloon must close on Sunday, and stay closed. This applies to Cleveland, Cincinnati, Columbus, Toledo, and every other large city, with the same force that it will apply to small towns. Ohio will be as dry as the Sahara desert on Sunday."

I hope Governor Cox will excuse me for mentioning right here that the friends of temperance—at least some of them—have been unkind enough to suggest that the above is only for effect; that, notwithstanding such a strong public statement, they fear things will go on after the old fashion, especially as it seems very evident that the mayor of Cleveland is not in sympathy with Sunday closing.

Now, one reason why I have given place to the above is that our Ohio people may know what the Governor promises to do and is *expected* to do. May God help him to make good his declaration, notwithstanding every thing the brewers and liquor-dealers may be able to bring forward to block the way of the enforcement of our righteous and just laws. Will our temperance friends in Ohio see that there are plenty of printed copies of this declaration, and that they are kept constantly before the eyes of the licensing boards of our wet counties?

WHAT SHALL WE DO WITH OUR GRAPES?

Quite a hue and cry has been raised by way of remonstrance against the work of "temperance fanatics" in their determination to ruin the industry of making wine. What will the poor women and children do? The great ranchers of California have immense capital involved for producing grapes to make wine. Somebody suggested that they should make their grapes into raisins. But, if I am correct, the wine grapes do not make raisins. Here is a suggestion from the *Practical Farmer* that solves the problem. Can't you say amen to it?

THE BRYAN BEVERAGE.

It is scarcely twenty-five years ago that we began to hear and talk about "unfermented grape juice." It was about that time that there were a few places in New York city where the juice was freshly pressed out of Concord or other black grapes, and served to thirsty customers at five cents a glass. We hailed the beginning of this enterprise with a good deal of enthusiasm, expecting that so delicious a beverage was bound to appeal to public fancy, and possibly be the means of powerful aid in the fight against the evils of intemperance. Since the days of that very modest beginning, the industry has grown by leaps and bounds, and the unfermented juice of the grape has become a common and popular beverage.

That it is exceedingly wholesome, as wholesome as it is palatable, is not in the least subject to doubt. At one time it was even claimed (with what justification we have no means of knowing) that the fresh or canned juice of the grape is fatal to the typhoid-fever germs. We know that it is a very pleasant summer or winter drink, and that it requires no special skill to put up a home supply if one has the grapes or can get them. If Mr. Bryan's courageous defy of old-established custom will serve to stimulate the use of and call for unfermented grape juice, and make the substitution of this harmless and wholesome beverage for alcoholic drinks fashionable and common, then he has thereby rendered to the country a service that can hardly be overestimated.

Lakewood, O., March 3. J. D. McCALMONT.

CIGARETTES, AND WHAT THEY ARE DOING IN THIS LAND OF OURS.

I presume our readers have all been shocked by the terrible story of the factory that burned in Binghamton, N. Y., on July 22. Below is a newspaper clipping in regard to the probable cause of that shocking calamity whereby between fifty and sixty women and girls were burned to death:

Some features of the catastrophe were brought out in a statement by President Freeman, of the company which operated the burned factory.

"I was in the office when Mrs. Freeman called to me that there was a fire," said Mr. Freeman. "I ran out on the main floor and saw flames coming out from under the open stairway. Some of our employees are so addicted to cigarettes that, smoking being forbidden in the building, they went out into the alley every hour or so for a puff. I believe one of these, on returning to work, threw his cigarette under the stairway."

The man or boy who smokes cigarettes becomes stupid. His senses are dull; and the cigarette fiends are continually causing fires by their stupidity in cases like the above. The general government is just now leaving almost no stone unturned in the way of prevention of loss of life like the above; but when it comes to whisky and tobacco, and especially the deadly cigarette, it says, "Hands off." Bulletins are sent out discussing habit-forming drugs, but the cigarette is not mentioned. There are millions of money in the manufacture of cigarettes that are to be sold three for a nickel. Nobody disputes the fact as to their bad mental effect on children, and older people, perhaps, to a lesser extent; but comparatively nothing is being done. Why, even the Chinese, in their recent crusade against the opium habit, are going ahead of us. May God speed the day when cigarettes as well as rum shall be handled by our President, and the officials under him, without gloves.

ANOTHER VICTORY FOR TEMPERANCE.

I am glad to tell you that we whipped the saloon advocates soundly. Our county is free from the saloon curse, and I believe it will remain so.

Weiser, Idaho, July 11.

E. A. PADDOCK.

Cleanings in Bee Culture

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Editorial

"CASH FOR YOUR HONEY AT YOUR DOOR."

DO NOT fail to take advantage of the special offer by N. E. France, as announced in his advertisement on page 20 of this issue.

MR. C. E. PALMER, of Ransomville, Niagara Co., N. Y., wrote us on June 13, "Bees have been killed by the peck in this locality by spraying with arsenate of lead; and it looks now as if little or no comb honey will be secured this season."

EMBARGO ON THE SHIPMENT OF BEES IN IMPERIAL COUNTY, CALIFORNIA.

THE following telegram came too late for insertion in our issue for Sept. 15, and hence we are inserting it here at this time.

On account of prevalence of European foul brood, the bee inspector of Imperial County has quarantined against shipping of bees from any of the counties in the southern half of California into this county. This is an absolute quarantine. Any one contemplating shipping here had better get full information and save expense.

Imperial, Calif., Sept. 11.

J. W. GEORGE.

THE TEXAS FOUL-BROOD LAW INOPERATIVE FOR THE WANT OF FUNDS.

WE are advised by Mr. Wilmon Newell, State Entomologist for Texas, that the last legislature which was in special session in July and August did not make any appropriation for the continuation of foul-brood or educational work. The beekeepers of the Lone Star State are, therefore, without funds for keeping up their fight against bee diseases during the next two years. This is too bad.

CARELESSNESS IN STRAINING HONEY.

THE following statement in a letter to a honey merchant in New York State is right to the point. "I have bought honey this year that averaged about one cupful of dead bees to every sixty-pound can, and there was more or less other foreign matter besides."

A few cans of honey put on the market in such condition will do more to lower the price of honey generally, and to cause suspicion regarding it, than can be offset by all the advertising and painstaking efforts of careful producers combined. Every pound of inferior honey sold hurts the honey business in general, and the careless producer in particular.

OUR COVER PICTURE.

THE view on the cover for this issue shows a part of the apiary of George Zautner, located in the city of Albany, N. Y. Mr. Zautner writes that the honey crop, while it is quite light this season, was very good last year. In 1912 his 72 colonies, spring count, produced three tons of honey.

We are glad to present on page 679 another view of the apiary showing also Mr. Zautner and his family. So far as we can recall, this is the largest crop of honey ever produced right in a city. Are there other city beekeepers who can beat it?

A CORRECTION.

IN giving credit to Professor Baldwin, who assisted us in the preparation of matter relating to honey-plants, in the preface to our A B C and X Y Z of Bee Culture, we gave his name as Eugene G. Baldwin when it should have been Edwin G. Baldwin, of Deland University, Deland, Fla. Both Mr. Lovell and Mr. Baldwin did excellent work in bee botany for the A B C, and we have expressed our acknowledgment to both the gentlemen; but, unfortunately, we have obscured Professor Baldwin's name just enough so his friends do not recognize him as one of the editors in the new work.

INSURING BEES AGAINST FOUL BROOD IN SWITZERLAND.

FROM the *Scientific American* for March 15 we learn that a form of insurance has been in existence for several years against disease (not against winter loss or any other contingency). A few years ago the Swiss Beekeepers' Association decided to establish a system of insurance, to be compulsory upon all the members, of whom there are about 7000, each paying a premium of about one cent a hive. In return for this they are guaranteed free treatment of suspected colonies, with instruction and assistance, and also with compensation to the extent of 75 per cent of the value of hives and combs destroyed by inspectors.

In December, 1909, the Swiss government decided to take over the inspection and treating of diseased colonies, and the Association was thus relieved of the expense.

In 1911 the number of colonies insured was 105,179; cases of foul brood, 114; the expenses, including claims paid, exceeded the premiums paid by 342 francs, or in our money a little over \$17.00—very small loss, surely.

In this country, owing to the fact that disease is more prevalent in some localities, at least, the premium would doubtless have to be much higher than one cent a colony.

FREE BOOKLETS ON THE USE OF HONEY.

THE National Honey-producers' League is preparing to send out to honey-producers free literature in the form of booklets designed to stimulate a demand for honey. The only condition required is that applicants pay their own postage. (See how they may be obtained in the advertising section of this issue, page 20.)

The Honey-producers' League was organized for the purpose of advertising and creating a demand for honey. The way seems to be open by which funds which it has held can now be distributed for the benefit of beekeepers at large in this country. All honey-producers, especially those who sell in a retail way, should avail themselves of this excellent opportunity before the supply of booklets on the uses of honey has been exhausted.

We understand that Mr. France proposes to use the balance on his hands (some \$600) for purchasing and distributing this literature. There will doubtless be a very heavy demand for the booklets, and those who desire to secure them will do well to get in touch with Mr. France at once, before the supply is exhausted and the money is gone. The issuance of these booklets just after the present fine crop of honey has been secured is particularly opportune.

NEW SUPERINTENDENT OF APIARY AT THE MASSACHUSETTS AGRICULTURAL COLLEGE; JOHN L. BYARD APPOINTED.

THE apicultural work at the College is growing so rapidly, and the demands of the beekeepers are becoming so insistent and general, that it has been found necessary to maintain a larger number of colonies of bees in order to accomplish results. This healthy growth is an index to the interest in apicultural advancement.

To enable the proper upkeep of the stock, Mr. John L. Byard has been appointed Superintendent of the Apiary, beginning September 1. Mr. Byard, besides attending to the bees, will also assist with classes, maintain the apiary building, exhibits, and collections, and prove new methods and implements. The addition of Mr. Byard to

the corps in Massachusetts interested in the promotion of beekeeping should afford further service to eastern beekeepers, heretofore impossible to render.

Mr. Byard is known to the majority of Massachusetts beekeepers through his extensive service as Deputy Apiary Inspector since 1911; as President for three years of the Worcester County Beekeepers' Association, and through numerous demonstrations at conventions and institutes. He is now president of the State Beekeepers' Association of Massachusetts, a delegate body representing the local organizations of the State. His life-long experience with bees began in Vermont with his father, a beekeeper and bee-hunter, since which time he has been in the front rank of practical beekeepers.

Since 1888 he has been recognized as an experienced and successful apiarist in Southboro, Mass. Many a beekeeper in New England will acknowledge indebtedness to Mr. Byard for enthusiasm, encouragement, and assistance rendered them, either as a beginning beekeeper or one confronted with perplexing problems.

DROUTH BROKEN; SHIPPING COMB HONEY; THE IMPORTANCE OF MOVING IT EARLY.

THE drouth that prevailed in many sections of the country has been broken by copious and refreshing rains. Where clover was only partially killed out, the plant will take a new lease of life, for it has wonderfully recuperative power. If conditions from now on are favorable, followed by plenty of snow, there is no reason why clover should not do as well next year as this.

Our Honey Column will give the trend of prices; and it should be borne in mind that now is the time to sell honey, especially that in the comb. If comb honey is not moved by car before freezing weather, it is pretty sure to be broken in transit, and, worst of all, it will begin to granulate. When granulation once sets in, the process is rapid; and of all things, granulated comb honey is difficult to sell.

Comb honey, especially alfalfa, from now on should be kept in a warm room or building. It is very, very important that there be no rapid variation from high to low temperature. Comb honey stored in a room without artificial heat, in the Northern States, may be warmed up by sunshine, and at night the temperature may go down to 60, 50, or even 40 degrees. If the room is, we will say, 75 during the middle hours of the day, and goes down to 50 at night, and if that variation continues for a couple of weeks, granulation is almost sure to set in.

We can not emphasize too strongly the importance of moving comb honey in car lots before freezing weather sets in. There have been more jangles and more trouble over late shipments of comb honey than over almost any other proposition connected with the honey business. Comb honey, when near or below freezing-point, breaks very easily, and a car of it at such times is quite sure to arrive in poor condition.

BRIEF NOTES ON MODERN RATIONAL BEE CULTURE; DEVELOPING AND IMPROVING ITALIANS IN THEIR NATIVE COUNTRY.

The above is the title of a new bee-book in Italian, by Gino Travaini, a teacher in the Provincial Agricultural School of Goritz, Austria. Mr. Travaini has put out a charming and interesting book. But the feature that makes it most interesting to us in this country is the fact that it has so much to do with American hives and methods. While the illustrations and descriptions of European hives and equipments are given due prominence, it is evident that the author has become permeated with the American way of doing things.

We believe it is the general consensus of most beekeepers of the world that the Italian is the best all-around strain of bees. Some of the old original imported Italian queens of some twenty years ago were some of the finest that we have ever seen—not in point of markings and bright golden bands, but in honey-gathering qualities, longevity, and gentleness. If this book shall result in the development of this strain of bees right in its own native clime, it will have well served its purpose in Italy and the outside world at large. At the present time we are unable to secure as fine a strain of imported Italians as we did some years ago. Why this is so, we do not know. If it is because beekeeping has retrograded in Italy, this work will serve to stir up a new interest. It will also mean the development of that strain of bees that has become famous the world over. Speed the day.

MORE ABOUT THE SMOKE METHOD OF INTRODUCING.

For a couple of issues back we have mentioned the success we have had in introducing virgin and laying queens, some of the latter too old to be introduced by any method except the use of smoke. We have been watching Mr. Marchant introducing by this method; and when we asked him if there was not danger of introducing queens by that method he replied, "Not as I do it." His plan is this:

He approaches a hive with a virgin or

laying queen. He then starts the smoker going, giving a dozen or two strong puffs out in the air. When the smoke rolls out of the smoker into the air dense and heavy he blows three strong puffs in at the entrance and then closes the hive. After an interval of perhaps ten or fifteen seconds he picks up his virgin and pushes her in at the entrance. He then follows her up with one more strong puff of smoke, and closes the entrance. In all he gives only four puffs—all that a large smoker will give when the bellows is closed clear down at each puff. Certainly this amount of smoke would do no harm to either bees or queen.

Up to this point Mr. Marchant follows the plan as laid down by Mr. Arthur C. Miller, p. 370, *GLEANINGS*; but instead of waiting 12 hours or over night, he removes the plug over the entrance in some five or six minutes, as he finds it not necessary to keep the hive shut up any longer.

Another thing he discovers is that this way of introducing can not be employed successfully in a small nucleus in full-sized hives, even if the rest of the space be filled up with empty combs. An ordinary division-board placed next to two or three frames is not sufficient to confine the smoke or the queen when she is allowed to run in. There must be a tight-fitting division-board or the queen will run wild into the vacant space; and when she does get back where the bees are, there is "trouble."

In one place where we watched Mr. Marchant he smoked in 23 virgin queens in as many different hives. Of these, 22 were found accepted and laying a few days afterward.

Mr. Miller's improvement over the old Alley plan of using tobacco smoke for introducing is in showing that tobacco is not necessary, and that an excessive amount of any smoke is not only not needed but cruel.

LAYING WORKERS AND A LAYING QUEEN IN THE HIVE AT THE SAME TIME.

For over ten days we have had laying workers and a laying queen in the same colony at the same time, the laying workers pursuing their careless go-as-you-please way, and the queen her careful methodical way. While this has been reported before, the facts in this case may be interesting.

By an oversight a queen that had been introduced to a colony without young brood, some time in June, was not checked up later on, as is our usual custom, and it so happened that the queen was not accepted. At any rate, the colony was left hopelessly queenless for some weeks, and laying workers developed. The true state of affairs

was discovered about the 15th of August. On the 21st, as an experiment, a laying queen was run into the entrance of this colony by the "smoke" method, and, contrary to what might be expected, was accepted and at once began laying. We have known of other instances like this, so that, up to this time, our story reveals nothing out of the ordinary. However, contrary to the usual rule, the laying workers did *not* disappear. Their haphazard work, consisting of several eggs in one cell, eggs attached to the sides of the cells, and eggs everywhere, in fact, continued right along, and yet in the midst of it all could be seen the work of the laying queen. She proved to be a good layer, as her work could be distinguished by the regularity and uniformity—that is, the eggs were in regular order, and always placed in the same way in the bottom of the cells. All about could be seen the work of the laying workers, the appearances going to show that they apparently entered into competition with the queen. It is not often that one can witness in a single comb such a curious combination of the regular and irregular placing of eggs, bordering upon (shall we say?) a mixture of the sublime and the ridiculous. Patches of perfect worker brood could be seen surrounded by scattered drone brood, cells containing larvae and eggs both, others with five or six eggs, etc. How long this struggle between the normal and the abnormal would have kept up we do not know; for on September 1, fearing that the abnormal might prove the stronger we called off the game, removing the laying queen, and placed her in a hive where she would have full sway.

Was this queen an unusually courageous one, or one who disliked to show her authority? The colony being so long without a good laying queen was made up of old bees, most of which were black and shiny. Had conditions gotten so bad that they had given up all hope? or had the laying workers become so numerous that there had not yet been time in the ten days that had elapsed since the queen had been introduced for their work to come to a stop?

AN AMERICAN BEEKEEPER IN NORWAY.

We were recently favored by a visit from a native of Norway, Mr. Ewald Omdahl, Drammen, Norway, who is nevertheless an American beekeeper in every sense of the word, for he uses American hives and fixtures, and he is a close student of American methods. Among writers in this country he is a great admirer of Dr. C. C. Miller and the late E. W. Alexander.

Mr. Omdahl's chief business is the manufacture of leather; but he has a beautifully

kept apiary, managed according to the very latest and best accepted practices of America, right in the heart of a city of 30,000 inhabitants. The bees are obliged to fly a considerable distance. During his three trips to this country he has made a special study of American methods, and has visited various noted beekeepers. His apiary is made up of Carniolans and Italians, not crossed, but in their purity. He prefers the Carniolans, because they work better in all kinds of weather, and are easier to handle.

We doubt whether there is a bee-cellar in the United States with such elaborate means for controlling the ventilation and temperature as this one of Mr. Omdahl's. It is built especially for wintering bees, of concrete, and the temperature is accurately maintained throughout all variations of all outside temperature by means of electric heaters, which can be turned on or off at will. These heaters do not exhaust the air, nor do they give off any bad odor.

This cellar has been used three years without any loss of colonies. Drammen is located on the sea coast, hence is not subject to any violent changes of weather. In many ways the climate is like that of Northern Ohio, as bees are generally removed from the cellar the latter part of March to get the early pollen which comes in the fore part of April.

Among the sources of honey may be mentioned the dandelion, willow, maple, fruit-blossoms, alsike clover (two crops), raspberry, some white clover and basswood, much heather in some localities, sunflowers, blueberry, etc. Two honey-flows are secured from the alsike—one beginning about June 20, and the other in August, but this latter crop is not so sure. The wild raspberry blossoms more or less all summer long. The principal sources of surplus honey are the alsike clover, the raspberry, and the heather. A peculiarity of the heather honey, as is well known, is that it is so thick that it must be extracted before it is sealed over, else it can not be taken from the combs at all in the ordinary centrifugal honey-extractor. From one five-story colony of pure Carniolans, whose queen was imported from Carniola (Austria) the year before, he took \$32.00 worth of comb and extracted honey.

Mr. Omdahl feeds 25 lbs. of sugar syrup, made of two parts of granulated sugar and one of water, to every colony in the fall—generally the first week in September. This amount is fed rapidly and at one time. The sugar is the unbleached yellow granulated sugar, 98 per cent pure, which is obtained from the condensed-milk factories. It is probably imported from the West Indies.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

FOR the second time in my life I have seen a queen sting a worker to death. Aug. 15 I put a virgin not a day old on a comb of a nucleus. The first thing it did was to elinch a worker, which showed it had been stung when it was released, but it did not die till some minutes later. Why did the queen sting that worker? A general spirit of destructiveness is shown another way in a young virgin. After she emerges from her cell in a nursery it is a frequent thing to find she has dug a hole in the side of the cell, as if she would kill the inmate.

THERE you go again, Mr. Editor, p. 561, telling us the average Ontario crop is 63 lbs. per colony, without saying whether comb or extracted. *You* may know what kind, but not every one else does. [There are times when we can not be specific in regard to comb and extracted honey. The reports sent out by the Ontario Beekeepers' Association did not say whether the 63 lbs. average was comb or extracted. The beekeepers of the country very seldom specify the number of pounds of comb or extracted honey. We should judge that most of the honey produced in Canada is extracted—possibly three-fourths of it.—ED.]

P. C. CHADWICK, you're wise to return to the book-record system, p. 600. You can lie on a lounge at home with your book, and lay out a program for the day's work in an out-apiary, saving time and avoiding blunders. Or, if you're too busy for that, you can do your planning on the way out. Then, too, it often happens that one wants to know exactly how something was 5, 10, or 20 years ago, when memory would be hazy about it. I believe the time is coming when every forward-looking beekeeper will count the improvement of his stock a point of the highest importance; and I don't quite see how much can be done in that line without an exact record.

J. E. CRANE, why didn't you ask that question before about having trouble with young queens hatching if a colony was left ten days, p. 564? I had the answer all ready a year ago, and it was this: "For at least 40 years I've followed the rule that a queen-cell could not be started and a queen hatched from it inside of ten days, and I never knew it to fail. I've tried it hundreds—yes, thousands—of times, with never an exception. When I give a comb of eggs and young larvæ to a queenless colony to have cells started, I know I'm safe if I cut the cells in ten days. No, friend Crane, that's one of the things I know, and know

for certain, that with me there is no exception to that rule." But I can't use that answer now. This summer I went to cut a batch of cells ten days after giving the comb, and found the oldest virgin already out and beginning the slaughter of her baby sisters in their cradles. So my answer now must be, "Never? well, hardly ever."

"It is probable that there is no great amount of nectar at any one time in the sweet-clover blossoms," p. 557. Is that the testimony of those who have sweet clover in large quantity? I had always supposed it an abundant yielder, from the fact that the bees are found in such numbers upon it.

P. S.—Just been out watching bees on sweet clover. Besides being thick on it, they seemed to spend at least as much time on each blossom as they do on white clover. [Perhaps the statement in question was a little too strong. There are times and places when sweet clover does yield considerable nectar; but in most localities in the East it does not yield a large amount of surplus, for the simple reason that the plants are scattered in long rows along railways and common roads. It is seldom found in solid compact masses or areas. As the agricultural press is now beginning to wake up to the value of this plant the probabilities are that sweet clover will be very much more in evidence in the future than it has been in the past.—ED.]

A. I. ROOT, old friend, aren't you a wee bit off in thinking that just because that beautiful first Psalm is so brightly hopeful it must have been written when David was comparatively young, p. 585? When he was old, and yet had never seen the righteous forsaken, hadn't he a more substantial foundation on which to base his hopefulness? Besides, look at yourself. Are you any less hopeful as years increase? I'm sure it isn't so "in this locality." [Thank you, dear old friend, for your kindly suggestions. Yes, I do think that as we grow older we should grow more hopeful. The hope of a mature Christian, however, is a little different from that of boyhood; and I still think, but perhaps I can not explain why, David wrote that first Psalm when he was young—say before he got into Satan's toils and had deliberately broken two if not more of God's holy commands. I am glad to know, old friend, that your faith in God's promises grows stronger and stronger as the years pile up. May God grant that the same may be true with each and all of the old "scarred veterans."—A. I. R.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

A few days ago the Crop Committee of the Ontario Beekeepers' Association met in Ontario to consider the buckwheat-honey situation. Reports received indicated about the same yield as last year, which means a rather light crop, for last season was a long way below the average. In our locality the yield is much lighter than last year. Rain did not come in time to help the buckwheat; although we have had a light yield of this honey, for some reason the bees stored more honey in the brood-nest than usual, so of course we have the comfort of knowing that the feeding-bill will be lighter, even if the surplus is smaller than was anticipated earlier in the season. Any way, the crop from clover was good, so naturally we do not feel like grumbling at the situation.

* * *

Since writing my last notes for this department nearly all parts of Ontario have had copious rains, and the long drouth prevalent in many places has been broken. Rains came too late in many localities (our own section among them) to be of much help to the clover. As a result the prospect in these places is poor indeed for alike next season. Beekeepers in Brant Co. report good catches of clover, and I understand that adjoining counties in that part of Ontario have been blessed with early rains too; so some parts of the Province will have a good chance of a crop next year any way. It is too early to make a forecast; and, after all, so much depends on weather conditions at the time of the honey season, no one ever knows what may happen, even if prospects are very poor. At the apiary 100 miles north, forest fires got uncomfortably near the bees; but rain came in time to prevent the fires spreading to the apiary. Nothing gives one a more uncomfortable feeling than to fear the results of a threatening fire; and I certainly heaved a sigh of relief when word came that rain had at last stopped the fires from spreading.

* * *

This spring a young man living near me sent to one of our well-known queen-breeders across the line for 25 one-pound packages of bees. The bees were sent just at the opening of the clover flow, and on coming to Toronto were stupidly held by the customs officials or express handlers (perhaps both were to blame) for 48 hours after their arrival in that city. Naturally the bees were in none too good shape when they arrived; but a strange feature of the case to me was that eight queens were dead in the

case, although the majority of the bees were still alive but about starved out. My own experience has always been that the queen will be about the last one to die in case of starvation in hives or cages, and I could not understand the cause of so many queens being killed. My own conclusion at the time was that the queens had been killed when introduced to the bees in the cages; but I could hardly believe that such a thing would happen in case of queens mailed by an experienced queen-breeder. It is only fair to state that the queen-breeder in question acted very fairly and generously in the matter, and these criticisms are not made in a carping spirit. The breeder in question is and has always been noted for his desire to give the "square deal." Perhaps some others who may have had experience in shipping packages of bees may be able to explain why the fatalities among the queens were so high, and whether it is a common experience to find dead queens among the bees when they are shipped in this way.

* * *

NO OBJECTION TO HAVING COLONIES STRONG OUT OF SEASON.

G. M. Doolittle's reasoning on page 442, where he champions the plan of using dummies in the brood-nest for the purpose of forcing all white honey into sections is hardly clear to me. He says that in apiaries of blacks or hybrids the use of dummies will save from \$150 to \$200 in an apiary of 100 colonies; but with a good strain of Italians that will reduce brood-rearing as the flow increases, the use of these dummies for the purpose of repressing out-of-season productiveness is not so apparent. With a non-restricted brood-nest with such a strain as he describes what will happen in the honey season? It has been my experience that it invariably means that the colony will put a great lot of white honey in the brood-nest instead of in the sections; and for my part I should prefer to have the queen occupying the frames with brood instead of having the combs filled with honey. Where there is a buckwheat flow following the clover and basswood, I do not believe there is wisdom in trying to force a queen to occupy as few as five frames with brood, as in such locations there are no periods of from 35 to 50 days between flows as he specifies; but, on the contrary, when there is a basswood flow it makes us hustle to get it off before buckwheat comes on. For "our locality," "bees always strong" is the only safe rule if best results are to be obtained, and I never fret about bees being reared out of season.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Editor Root, page 593, recommends the Burt system of preventing swarming, as illustrated on page 610. The Burt system may be all right at times; but with our cool nights in California it is a very difficult matter to preserve heat sufficient to get the outside rows of sections completed at best, and any additional air-admitting space should be avoided. This is only in keeping with what I have been preaching for a long time, that plenty of room will retard swarming by keeping the colony cool; and to my notion it is better than the Burt plan. By his plan the bees are simply forced to remain at home to help keep the brood warm by sheer force of numbers, while a hive might be manipulated in a manner that would permit many of the hive force to enter the field rather than to remain to hover brood. I am not sure but that it would be more profitable to allow swarms than to make a condition that will cause loafing inside of the hive to prevent swarming. The plan has been tried to some extent in this climate, and will reduce swarming as claimed; but in at least one instance I have known where a beekeeper used small rocks to prop up his hives for ventilating purposes when it would have been more appropriate to wrap them in blankets to preserve what heat they were able to make.

* * *

Early in the year I mentioned having questioned a number of members at the State convention concerning the color of alfalfa honey, and that many were of the opinion that the difference in color was due to darker grades becoming mixed with it, also stating that I was of the opinion that the pure alfalfa was white. In the April issue of the *Western Honey Bee*, Mr. Harry K. Hill took issue with me, stating that he gets at least three different shades during the season. In the May issue Mr. L. L. Andrews says of orange honey: "Some seasons it is much whiter than others, and at times much milder. In the June issue I cited the fact that every form of nature follows its law, each form on the line on which it was created, and that it could follow only the line given it, regardless of the opinion of man, and that a plant could not under the laws of nature produce more than one color of nectar. In the July issue Mr. Hill says that his observations were taken at a time and place that left no room for doubt on the matter, and intimated that climatic conditions might have something to do with the variation in color. In the same issue

Mr. Bixby says that he has been "wraslin'" with me for two years trying to convince me that the white-sage honey from the disintegrated granite of the foot-hills is much lighter in color than that from the dove lands. Why not alfalfa also? Then he adds, "These fixed laws of nature all have so many exceptions that they wiggle a little. Locality makes a lot of difference." He also says, "Nectar from cultivated buckwheat is often so light in color during the first few days of the flow as to be readily mistaken for clover honey, except for the rank odor." I presume Mr. Bixby does not take into consideration that the difference in soil has any effect on the color of white clover, as he makes no mention of the fact, and does not qualify his statement with a soil condition; and in this, at least, I believe he has weakened his own argument. In the September issue such able men as Mr. J. W. George claim that alfalfa is not white, while others claim that climatic conditions have an influence. Alfalfa honey may not be white—my strong contention has not been that it was, though I have not fully given up the idea yet—but my main contention is that, if it is not white, it must have a color peculiar to its nature, and that it does not change color with the wind nor the moon nor soil, nor does any other plant. If it does, then my twenty-five years of observation have been set at naught, for that would be entirely at variance with my observations. If there were no fixed color for the nectar of the various honey-plants, the mere name orange, alfalfa, white clover, basswood, etc., would mean nothing so far as color is concerned, as it might range anywhere from white to dark amber from the same source.

It will take a lot of evidence to prove to me that climatic conditions or soil have any influence on the color of nectar, any more than the atmosphere or the color of the food that I eat has any effect on the color of my blood; for, as I have said, it is not consistent with nature; besides, I am not willing to admit that I have no assurance of the color of honey I shall get from the orange alone or sage alone, though these trees and plants are growing on several kinds of soil within reach of my apiary, and there is always a variation in climatic conditions during the honey-flow.

This question is at least worth discussing; but I believe the majority of beekeepers will sustain me on my opinions of this matter.

Beekkeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

BEEES AND PARCEL POST.

I had two two-pound nuclei shipped April 15 from Texas. These bees were not shipped in the regular packages as shown in April 15th GLEANINGS, but were sent in the two-frame nuclei boxes with one frame and a bottle of water. The queens were caged. The sponges placed in the bottles came out during the trip, but the bees had not apparently suffered. One package weighed 9 lbs. and the other 7½. When started from Texas, three and a half days before, they weighed 18 lbs., according to the express billing.

The cost of shipping these two nuclei, weighing 18 lbs. combined, was \$2.63, or at the rate of 15 cts. a pound. By mail it would not have amounted to more than about five or six cents a pound. And, beemen, there is no reason why we can not take this matter up with the Postmaster General and get bees sent in pound, two-pound, and five-pound packages by parcel post. The Postoffice Department does not put all mail into sacks. The postmaster at Boulder told me that all fragile goods are handled outside of mailsacks just as carefully as is done by the express companies. Eggs are being sent all over the country for setting, and baby chicks are being sent the same way; and I should like to have some one tell me why it would hurt a postal clerk to get stung any more than an express agent. Why can not the Postoffice Department handle this business as well as the express companies? We will see that they can very soon, for we can not have discrimination.

* * *

THE PSYCHOLOGY OF INCREASE.

We have the psychology of business, the psychology of success, the psychology of the mob—nearly every thing is psychological these days, so why not put bees in the psychological category? There is about as much psychology in a hive as in any thing I know of, and Mr. Maeterlinck would probably say there is a great deal more. All of which, by the way, is introductory to what I want to say regarding making increase without lessening the honey crop. Coming back to psychology again, it should be remarked that the Alexander plan of making increase is taking advantage of colony conditions at the psychological moment.

Bees built up with gratifying rapidity last spring. In an apiary of 100 colonies, one-fourth of them had brood in all their ten frames by April 30. Combs of sealed

brood and hatching bees were given to all weak colonies, and many hives with more honey than needed were relieved of some, and empty drawn combs were put in their places. Forty combs of honey were taken out in this way to give room for breeding. This honey went back to the bees again a little later to feed the brood and young bees coming on.

Our main honey-flow does not begin until early June, so that, in order to keep our bees on the up grade, we use the Alexander plan of increase on all we can. The queens must be kept busy laying until June. If we can keep them laying, there will be less swarming, and we will have twice as many workers for the alfalfa harvest in June, July, and August. When we take eight or nine frames of hatching brood and place them over an excluder with the queen below, and an abundance of combs all clean and ready for the laying of eggs, that queen just gets busy, and it keeps her busy for some little time too. In ten days the upper hive with queen-cells, perhaps, may be set aside, the cells cut out, and a young queen given. Feeding may be necessary, but it will pay well to feed both lots of honey if necessary to keep up brood-rearing. A hive jammed full of brood June 1 to 10 is going to begin super work much sooner than one that is half full of brood. The first forty pounds of honey will go below if there is room for it.

The defects in the queens will show up right along when conditions are such that the queens are unhampered for egg-laying room. You will soon realize the need of extra queens. One, two, or three dozen on hand all the time these days will be an advantage.

Educational Apiary in London

In the 1912 Reports of the Zoological Society of London which I have just received I find the following on pages 8 and 9:

BEEKEEPING.

The Council arranged with the British Beekeepers' Association, which had received a grant from the Development Commissioners for the establishment of an experimental and educational apiary in London, to provide accommodation at the Gardens. A site on the north bank of the canal was selected for the apiary, made suitable for hives and for demonstrations, and the use of the lecture-room for lectures was given. The association paid the society a small rental to cover expenses, and agreed to remove the bees if their presence proved injurious to visitors or to the animals. So far as the society is concerned, the arrangement worked satisfactorily in 1912.

Valparaiso, Chile, June 10. J. A. WOLFSOHN.

Conversations with Doolittle

At Borodino, New York.

GRADING AND CRATING COMB HONEY.

"How shall I crate my comb honey? This is my first experience in sending honey to a distant city."

"I would advise you to put not over twenty sections in a case, and then to put nine of these cases in a crate made with two handles on each side so that two men can handle it. This large crate will weigh about 200 lbs. In this way there is not the liability of breakage that there is where each of the nine cases of twenty sections each is shipped separately. This is on the supposition that you will ship your honey as freight. Comb honey by freight is much less liable to breakage than when sent by express, for all express matter is handled very rapidly on account of the short stops of such trains."

"But my honey is of different shades of colors, some being made from clover and basswood, some from buckwheat, and some from goldenrod and fall flowers."

"These different kinds should all be kept by themselves, and not mixed. You would hardly expect that a man having apples of different kinds to sell would mix greenings, Baldwins, and Spies together, would you?"

"No. But suppose he has those greenings, Baldwins, and Spies, each in different piles, and all of them are nice smooth apples. And we will assume that, as to size, they run from 1½ to 3 inches in diameter, and that some of them grew on the sunny side of the tree, so that they are nicely colored, and some in the shade, with little color on them. Will he pick them up promiscuously and put them in the barrels thus? or will he put the largest and nicest-colored in the bottom and top of the barrel, filling in the center with the remainder?"

"We are now getting at some of the old difficulties of the past. Possibly I can answer better by telling you of the instructions I received from a man to whom I sold apples a few years ago. He bought thousands of barrels of apples, and shipped them to large cities. In the first place, no apple was to go in that would go through a hole bored with a two-inch auger, no matter how smooth, perfect, or highly colored. All these were to go in as seconds. Then from the firsts and seconds the largest and best-colored half bushel was to be selected to go into the bottom of each barrel marked firsts and seconds. These selected apples were to be placed stem down on the bottom of the barrel till that was covered, when the rest of the half-bushel was carefully poured on them. Two bushels were now picked up

promiscuously and put in the barrel. A second half-bushel of apples was selected as was the first, and poured on top. The barrels were now headed up, turned over, and marked firsts and seconds, with the kind; and when shipped the shipping directions were put on this end, so that, when opened at their destination, the row of choicest fruit would stand out prominently, stem end up, which gave a very inviting and tempting appearance."

"But was not such a course a sort of fraud?"

"That was the question I asked, but was told that the market demanded this way of putting up apples; and unless I put them up according to instructions the apples would not be accepted, as the buyer could not get market prices in any of the different cities he shipped to unless they were so put up. I protested a little to draw him out, and was met with 'How can it be considered a fraud to put up apples thus? All apples that will not go through a two-inch hole are called in market firsts or gilt-edged. I do not retail these apples, but sell from one to forty or more barrels to grocers and jobbers, and these men specify how I must put them up.' Now, while this does not fully apply to honey in sections, yet it has a bearing in the matter. First, the different kinds of honey should be kept separate, and such sections as have mixed honey in them should also be kept separate."

"Second, while no two-inch hole can be used for grading honey, yet each kind should be sorted as regards travel-stain, evenness of comb, unsealed cells, etc., generally making three grades, as fancy, firsts, and seconds, doing this grading carefully and honestly. Now, as with the apples, let us suppose the honey is graded, and we are casing fancy. We take out enough sections to fill a case. How are these sections to be put in that case? Haphazard? Not one buyer or commission man has so instructed during my forty odd years of beekeeping. All have believed that it was perfectly right to select from *that case a number of sections* those that are the best, and put them next to the glass. Yea, more. I have always been instructed to turn the best or face side out at that. But you will note that this dishonest facing matter hinges on the sorting or grading rather than on any thing else. For a man to go through his crop of honey and sort out the very best sections, and use these for 'facing' his cases of culls would not only be dishonest, but also very foolish, even from a business standpoint."

General Correspondence

A NEW PLAN FOR THE PRODUCTION OF COMB HONEY AND FOR THE ELIMINATION OF SWARMING

Cutting Extracting-combs in Pieces and Fitting them into Sections for the Bees to Fasten

BY DR. G. A. HUMPERT

Some weeks ago we received a letter from Dr. Geo. A. Humpert, a specialist, of St. Louis, Mo., who had evidently taken up beekeeping for pleasure and profit in his back yard. He said he had developed a new system for the production of comb honey that would make it possible to secure perfect sections of honey, all fancy and No. 1, with no seconds; and, more remarkable still, he would be able to eliminate the nuisance of swarming. He desired to know what we would pay for such an article, saying he thought it ought to be worth a considerable sum; for if one could produce all fancy and No. 1 comb honey and eliminate swarming, it would mean a good deal to the fraternity. We were not willing to pay any definite figure until we could have some knowledge of its feasibility from some disinterested party like Dr. C. C. Miller, of Marengo, Ill. The result of our negotiation was that the plan was to be submitted to Dr. Miller in all its details, and that Dr. Miller, after examining the same, should give us his unbiased opinion of its feasibility without revealing the method or any detail thereof.

This was done. After examining the system carefully the doctor wrote us that he did not believe it would prevent swarming, but, of course, did not explain why. Later he was given permission to do so, and then wrote us that the system would fail in swarm prevention because it did not provide *drawn* combs, such as the extracted-honey man gives his bees; that in the matter of fitting the filled combs into sections and letting the bees fill them, he did not know, but had some doubts.

This letter of Dr. Miller satisfied us that we could not pay very much for the method. Further negotiations resulted in our securing the privilege of examining into it ourselves with the privilege of placing it before our readers.

We would not go so far at this time as to say there may not be some possibilities in the plan. It will pay every one of our readers to go over it carefully, for it is not only exceedingly interesting but it suggests a train of possibilities that may be worth developing. Here is the article:

Once upon a time a patient said to me, "Doctor. I owe you a little bill. I haven't the money to pay you, nor do I know when I shall have any. If you could use a stand of bees I might accommodate you."

It has always been my policy to take whatever I can get. So I took the stand of bees. It was an old-fashioned box hive. The man said that he had always intended to transfer them to a patent hive; but—he was afraid. In fact, he had been afraid to rob the bees. The hive was a sectional affair, about five feet high, and his wife explained that for two or three years preceding she had always urged "Henry" that the bees needed room. Then Henry would make another section, slap it on, and—run.

I had always been vaguely interested in bees, credited them with almost supernatu-

ral instinct, yet knew but very little about them; but now the interest became acute. I hastened to the public library and secured what books I could find on the subject. I also subscribed to the various periodicals on bee culture, and, as a natural sequence, was soon in the toils of the supply manufacturers. After the most careful consideration and judicious selection a beginner's outfit was ordered. I remember with what feverish impatience I awaited its arrival. Several tracers were sent after the shipment (unnecessarily, I have no doubt). When it finally arrived I went to work and transferred the bees *secundum artem*. Dear me! what a mess it was! hundreds of the poor little workers succumbed to my inexperienced brutality—the more brutal because of my own fear and trepidation. That her royal highness did not perish was a wonder. However, in a crude way I succeeded, thanks to the industrious workers, in repairing the damage I had wrought.

The bees did well; in fact, I raised more bees than honey, so that by the following year I had six thrifty colonies on the rear part of a town lot, and began to resent the term "beginners" so often met with in the books and journals, as applying to me. My neighbors began to complain; but being now thoroughly inoculated I concluded to remove to a country town. I chose to ship my goods on a boat up the Illinois River, thinking that it would be easier on the bees; but when I followed the last load down the levee I was met by the drayman who asked what he was to do with the bees, for the captain wouldn't receive them. In surprise I inquired why. "I don't know," said the drayman; "he simply swore, and, I believe, is swearing yet; but I got one hive on all right before he stopped me."

I went on board, hunted up the captain, and, when I asked why he would not take the bees, he replied with a string of oaths which, in the way of emphasis and vehemence, I have no doubt was quite artistic, but did not answer my question. In an effort to conciliate him I gave every assurance that the bees were well packed, and could inconvenience no one. Then the captain made some very pertinent remarks:

"Yes," said he, "that's what the beekeeper also declared who shipped bees on this boat several weeks ago. Well packed! yes, may be they were; but when a roustabout knocked a hive off the stack it smashed. The whole air was filled with angry bees, and every d—d nigger jumped into the river. We shoveled the busted hive into the

river, but the bees stayed on board looking for it, or the niggers—I don't know which. The upshot was that we had to tie up there for nearly a week until the bees quit bothering before the niggers would venture on board again to work the freight. No, thank you; bees don't go on this boat again, even if you paid double freight."

It was useless to argue. I was obliged to sell the unshipped colonies at a loss.

One colony, however, came through all right. That, in the course of time, increased to some thirty; but my new locality, though affording more elbow-room, was really a poor one for honey.

Some three or four years ago, when feeding back a lot of scraps in a super, I observed, after a time, when every brood-frame was doubtless filled, that the bees no longer took the honey down, but, instead, fastened the scraps to each other and to the vessel in which I had placed them. This gave me an idea. Instead of compelling the bees to build in the small sections, toward which they seem to have a natural antipathy, why not permit them to do the principal work in the extracting-frames, then cut it out in suitable plugs, or squares, insert into the sections, and put them back on surcharged hives to fasten up?

With feverish haste I selected a few well-filled extracting-frames, and, in a crude way, cut out a number of plugs just the size of my sections, slipped them in, and set the sections over the same hive. The following day I took them off, and, lo and behold! they were all firmly fastened. It is true that the job was not a neat one. Some had toppled over, owing to the fact that the lower cut had not been exactly at right angles with the surface; others,* for the same reason, were fastened in rather crooked; but they were all nicely fastened. Moreover, wherever the sections had been smeared with honey they were licked dry, and not a speck of propolis was to be seen; they hadn't had time to daub them up.

I figured that it would be cheaper to put in full sheets of thin foundation in shallow extracting-frames, just the size to yield four sections; and that with special knives rigged up in such a way as to cut out the plugs accurately with one stroke, slipping in the plugs, putting on and taking off would be preferable to putting foundation into the sections separately and scraping off the nasty propolis. Moreover, every section would be filled—no half-filled sections, some with merely a dab of honey. Last, but not least, the well-known preference with which bees fill large frames to small sections would insure a larger yield of section honey; furthermore, swarming could

be controlled, even as in the production of extracted honey.

The following winter I devised and constructed a machine consisting of a set of five knives screwed four inches apart upon a common pivot. These knives puncture the comb just beneath the top-bar, when a gentle pressure on a foot lever forces the blades through the comb to the bottom-bar. The comb is next slipped back off of the knives before the foot releases the pedal. This completes at one stroke the five vertical cuts. The machine is made large enough to hold a superful of combs, and to fit snugly on a tin pan which catches all of the honey drip. The horizontal cut is made by a pair of knives mounted in one handle four inches apart. For this purpose the comb is laid upon an inclined plane, whence the honey may flow into any vessel, and where the sections may be slipped over the plugs of comb after being slightly separated, allowing space for thickness of the sections.

Being ready for business I impatiently awaited the next honey-flow; but the following year proved an absolute failure in my locality. Then, very much like a grazing horse that always thinks the grass in the distance is better than that near by, I moved again. This time I chose the northwestern portion of Missouri, when, lo and behold! the drouth there the following year (1911) was so severe that the bees had a struggle to maintain themselves. Completely discouraged I turned my attention to professional matters, and left my pets in the care of inexperienced hands. The consequence was that many of them went into winter quarters with insufficient stores.

With the following spring my interest reawakened; and hoping that I might try my experiment on a larger scale I again looked after my bees personally; but, alas! over half had perished, and the remainder were too weak to make a fair test. Any way, the spring of 1912 was little better in that locality than 1911. However, the fall flow was some better, and I found it possible to make the test. My first difficulties were in finding but few of the extracting-combs, which I intended to cut into sections, as perfect as I desired. Owing to the inexperienced help, many of those frames (filled with full sheets of thin foundation) had been on the hives too long during the two failing springs preceding, consequently some had been but partially built out, while others had been gnawed and disfigured. The imperfect combs did not prove to be as much bother or loss as an equal number of imperfect sections would have been, for they were all extracted, though the first ex-

tracing had to be performed with care on account of the thin foundation.

After selecting the best combs, my son and I went to work. The first step was to slide the comb so the five knives simultaneously penetrated it just beneath the top-bar, then a downward pressure of the foot on the pedal forced the knives through to the bottom-bar, completing the vertical section. Then, slipping the comb back, it was laid upon an inclined slab (which drained into the uncapping-can). Now the two knives mounted four inches apart in one handle were inserted and the longitudinal cut made. This double operation was made in less time than it takes to describe it. But the following steps were a little more tedious. The plugs had to be slightly separated to permit room for the thickness of the sections. However, the plugs fitted exactly; but I discovered that, if the slab were hinged in such a way that it could be raised into a vertical position, thus facilitating taking off the filled sections without fear of having the plugs slip out, it would be quite an advantage. Yet I worried along very nicely. In placing the sections in the supers I tried to overcome another difficulty; it has been my experience (and, I believe, every bee-keeper's) that bees will wax up or propolize any contiguous parts; but where there is bee space it will take some time before they will get to daubing. Here's where I spent a lot of useless time. At first I had driven nails through slats to rest in the bottom of the supers with the points projecting upward about $\frac{3}{8}$ inch, intending to set each section on four nail-points, and as far apart. (I had a number of large supers, made to fit the Dadant hive, otherwise this would not have been possible). Thus I expected that, if there were any daubing at all, it would be only at the nail-points; however, this was a failure. Too much time was wasted in placing the sections, and the care required in handling to prevent toppling over. Then I resorted to a modification of the old T tins; but instead of being shaped thus  I enlarged the center fold thus  so the requisite bee-space was secured, and the sections could be quickly placed.

Now, in my impatience I chose six of my strongest colonies and put two supers on each to be sealed. In twenty-four hours I removed them. Yes, they were all fastened: a few plugs had toppled over, but, alas! many cells had been emptied. I had neglected to gorge those colonies first, thinking that, as they were the most populous and wealthiest of all, they required no preliminary treatment. Somewhat discouraged—yet determined to hold out—I proceeded to

gorge three colonies and tried again with better success; and, being also more careful about the longitudinal cut, so as to get it square, and at right angles with the surface, none toppled over. Ah, the beauty of it! though the sections had been daubed with honey they were all licked clean, and not a speck of propolis. Only one doubt remained—were those plugs sealed as firmly to the wood as otherwise? Apparently, yes; but after a little rough handling at the store two dropped out. Hereupon I left them on 36 hours instead of 24, with better results.

Such were my results, but what avail? Most of my bees had perished; and, considering the uncertainty of season and locality, I chose to devote my whole time again to my profession. My son also, who, I hoped, would become a successful apiarist, determined instead to become a machinist. To perfect himself in this his ambition turned to the metropolis, where opportunities and facilities existed. Having but one son I dreaded an early separation, so I completed the circuit and moved back to St. Louis.

Not being in position to test this method of comb-honey production any further I give it to the public for what it is worth. I am convinced, however, that any one in a fair locality would soon become proficient with this method. Practically the bees would be treated the same as in the production of extracted honey, with the exception of the hives utilized for fastening and finishing up. Yet with those, though being gorged, could be given plenty of super room and thus discourage swarming. Some more experience is necessary to ascertain just how long the finishing process should last to secure best results. I had as many as six supers at once on the strongest colonies. It seemed that better results were secured with four or six supers than only one. The more dripping honey there was to be cleaned up, the less space they had left to put it. As to the fastening up, it really seems to be instinctive. The bees themselves appear to dread any loose combs or parts.

St. Louis.

[Before negotiations had been completed by which we were to publish the article, and after securing Dr. Miller's opinion, we in turn wrote our own "opinion," a part of which is given herewith:

Mr. Geo. A. Humpert:—Your favor of July 12, with the enclosure of article describing your system of comb-honey production and swarm prevention, together with letter from Dr. Miller, was duly received. We don't wonder that it seems fascinating to you; and unless one has had a very large and extensive experience, and opportunity for extended observation, he might be misled, just as you were in part.

We have been over Dr. Miller's letter that he has written to you, and would endorse every thing he says, especially where he says your plan would not prevent swarming. Your scheme is based on the idea that, when running for the production of extracted honey, there would be little or no swarming. This is correct when the hives are properly managed—that is, providing that empty drawn combs are given the bees fast enough, or, rather, often enough, so that at no time are they ever crowded for room. But your plan does not contemplate the scheme of giving extra room. You produce your honey in the first place in shallow frames. This honey must be built off from thin super foundation, and in that respect you are no better off than if the combs were drawn out and filled with honey in sections. Now, this may be a new fact to you; but we have been producing comb honey in shallow supers for the last six or seven years. We are mailing you under separate cover a sample of our cut comb honey, such as we have been supplying to the Pullman-car trade during that period.

Naturally enough, we supposed, as did you, that when we produce extracted honey in shallow frames we would reduce swarming; but in this we were very greatly disappointed; in fact, we can see very little difference between the behavior of colonies drawing out foundation in shallow frames and colonies drawing out foundation in sections. The one seems to be almost as bad as the other in respect to swarming. But, on the other hand, if we can give shallow extracting-combs, *already drawn out*, mind you, there will be little or no trouble from swarming, providing these supers are put on often enough to give the bees room as fast as they fill one set of combs. The theory of swarm prevention in extracted honey production is empty combs all ready for the bees. On that point Dr. Miller is exactly right. The thing that makes bees start to swarm is building combs, simply for the evident reason that they have not any store room ahead. When that condition arises, and the hive is a little crowded, swarming is almost sure to be the result. Bees seem to be disinclined to build comb, and they will swarm before they will do very much of it—that is, unless other preventive measures are employed.

In your letter to us, however, you say that the matter of swarm prevention is not your only idea. We can readily see that. It involves the old scheme of producing comb honey by a plan which you believe will give perfect combs, free from soiling, by making the bees attach those combs to sections after they have been drawn out and capped over.

Right on this point it is our belief that you would not be able to get the bees to attach these combs to the sections as firmly as if they had been built there in the first place. The very fact that some of the combs dropped out in shipping is rather an indication of what might happen if a few cases of comb honey produced in this way were shipped long distances as ordinary comb honey has to go.

Now, we have spoken rather frankly, and in a way that almost indicates that your invention is of no value. So far from believing that, the fact that we have been using something along similar lines would indicate that we do attach some value to cut combs, not on the plan that you employ, but on the plan that we use in putting them into cartons and then wrapping up afterward. Combs will ship in cartons very much better than they will in sections. You see we have a saving over you in that the bees do not have to attach the combs to any thing. We simply cut them up and then put them into cartons and wrap them up.

Taking it all in all, we think you will see that the plan we have been working upon is an improvement on yours in that the combs do not have to go back into the hives to be attached to the sections. We simply produce shallow extracted honey, cut it up afterward, and then wrap it up as shown in the

article in GLEANINGS for Dec. 15, 1909. This plan has the advantage over the one that you mention in the fact that comb honey can be shipped in this way around the world, because it is not attached to any thing. The difficulty with ordinary comb honey in sections is that the combs break away from the rigid support of the section. That is the reason why the comb-honey business has been going to the bad, and nearly every one is working toward the production of extracted honey. E. R. Root.

As stated in this letter, we have had a great deal of experience in cutting up extracting-combs into small squares or plugs for the Pullman-car trade. This plan was illustrated and described in our issue for Dec. 15, 1909, as already stated. Since that time we have continued the business of comb-honey production, but not on the regulation lines. We found a considerable demand for these cut combs, especially for fancy restaurant and dining-car trade. We have not attempted to cut comb honey in squares weighing a pound or more, but have only catered to the trade that calls for individual service of comb honey—that is, little chunks weighing between two and three ounces. Well, having been at this business for the last seven years, the scheme of producing comb honey in shallow extracting-frames was a rather old one to us. We have not, however, tried the plan of cutting the combs of just such a size as to fit neatly the common section honey-box. Without having tested it, it would be our opinion that these combs would not be as stable in the sections as those built there in the first place; that the cut comb afterward fastened in the section would have a sort of stuck-in look—that is to say, it would not have the finished appearance of a nicely built comb that has been built in the sections from foundation. However, we are open to conviction; and if Dr. Humpert has struck upon a new and simpler plan of producing section comb honey we feel sure that the beekeeping world will be glad to pay him for it. While he may be able to secure a patent on the appliances for cutting the combs, he could not very well protect himself on a patent covering the method of letting the bees fasten the cut combs into sections. Honest beekeepers, of course, would pay the doctor a royalty; but thousands of dishonest ones, and others who might claim the idea was old, would disregard his rights, secure in the belief that he would never know that they were purloining his invention.—ED.]

Comb Honey, 214 Lbs. from One Colony

This has been a fine season. I have taken 440 lbs. of comb honey from five colonies, my best giving 214. I think that is good for one in the A B C class. Springfield, Ill., Sept. 2. A. C. BAXTER, M. D.

A COLONY OR TWO OF BEES

How They May Reduce the Cost of Living

BY W. R. COMINGS

[The writer of the following article, Mr. W. R. Comings, superintendent of the public schools of our neighboring city of Elyria, a place of 15,000 inhabitants, deserves more than passing notice. Mr. Comings was formerly superintendent of our own Medina schools, and during that period, in the late 70's and early 80's he had much to do in shaping the future policies of a number of the boys, particularly of ourself. It is not too much to say here that we feel more indebted to him for our educational training than any other teacher we ever had. Always up to date, he is most of the time a little ahead of the world. His schools in Elyria show that in every room. Well, when he took up beekeeping, it was presumed, of course, that he would use modern methods at the start, and he did. Not only that, but his progressive mind has been looking toward new and old fields. He writes:—Ed.]

Why do I keep bees? First of all, for the fun of it. Second, to reduce the cost of high living, or, rather, to have a taste of high living without any cost.

Formerly the annual purchase of honey for the family was not above half a dozen pounds a year. Honey was a luxury, and rather expensive, as I fancy it is to a great many people. But if bees would pay their own way, why not have honey in plenty? And then I had a little sportive desire to see what I could do with bees, and so last year a colony was ordered of my good friend Root.

The interest I have taken in those bees has amply repaid me, for all along it is a bit of nature study with an incentive. But I have nothing new to add to the beekeeper's lore. I have an argument to present. But first let me remark that there were many dark forebodings about those bees. The good wife had visions of their flying straight into the faces of all the neighbors and the neighbors' children, and there are no less than six families living within sixty feet of that miniature apiary. But no one has been stung besides myself, and one is soon immune to the poison-punctures.

Well, that colony doubled the first season and produced sixty pounds of delicious sweetness. This year the two colonies increased to four, and the season's crop was 285 pounds. Enough honey has been sold to eliminate all costs, and there is honey on the table every day. Hereafter my honey costs me nothing.

Are not these facts sufficient justification for my preachment, which is that every householder should keep a colony or two of bees. They make little work, occupy almost no space, turn out a good product, reduce the cost of high living, eliminate largely the craving for expensive sweets and chocolates,

and provide a diversion for the tired man after business hours or on holidays.

The next step might be a goat or two if one cared to go that far; but I stop with the bees, and shall continue to buy milk as long as possible.

Elyria, Ohio.

SHIPPING FULL COLONIES 1000 MILES BY EXPRESS

BY M. A. PETERS

While living at Spring Valley, Ohio, in the spring of 1910, I was the happy possessor of 72 fine colonies of bees that had wintered in fine shape. If I remember rightly, there had been some willow and dandelion bloom. I suddenly decided to move to Ft. McCoy, Fla., and take 42 colonies with me. The problem arose as to how to ship them. The railroads would not accept them by freight, and eight-frame hives partly full of honey were too expensive to go by express. Therefore I resolved to use light shipping-cases $\frac{3}{8}$ x 4 inches wide, and the snug length of a Hoffman top frame bar. The sides were to be made of wire cloth, and tacked every $1\frac{1}{2}$ inches. Those cases were made two inches deeper than the frames. There were cleats nailed inside of both ends high enough to make the frame level with the top.

One frame one-half or two-thirds full of honey and some brood were put in each case, directly in the center. Each colony was carefully shaken into the case; the lid nailed, and two screws put down through into the top-bar of the frame to prevent turning sidewise. About ten of those were nailed into a light skeleton crate ready for immediate shipment by express. Empty hives had been sent on ahead by freight to receive those when they arrived at their destination. The hives containing combs were sent on immediately after.

The bees arrived at their destination not much the worse for their long ride, although it seems to me that it would have been better if they had been provided with a little water, as they seemed very thirsty when turned loose.

Bees properly crated in this manner could be safely shipped 2000 miles. Plenty of sealed honey must be provided for such a trip, as the consumption of honey seems to be considerably above the normal.

I shipped by freight several hundred fine newly drawn combs wired four times across. Those came through with scarcely a break. I put about 100 into a box, and packed them very tightly.

Fort McCoy, Fla.



George Zautner and family, of Albany, N. Y. Another view of Mr. Zautner's apiary is shown on the cover of this issue. See editorial.

AN OLD BUT VERY EFFICIENT FRAME-NAILING DEVICE

BY J. L. BYER

While beekeeping has, no doubt, kept pace with other industrial pursuits during a number of years, shown by the many new things that are constantly brought to our notice, yet every once in a while some old device or plan will be found that, after all, is better than the modern methods which are supposed to supersede the more ancient ones. The frame-nailing device illustrated here is in this class; for while my grandfather and his brother used this forty years ago, I have yet to see a better plan, although I have seen a great many other devices for this purpose during the past ten years or so. Indeed, I doubt if there is another one as good as this, all things considered, as frames nailed in this device are absolutely *on the square*, and a good smart operator can nail up quite a few hundred frames in a day, and work in a position that is not tiresome to him.

Figure 1 shows the front of the device. The only movable parts shown in this picture are the lever at the bottom right-hand

corner, and the two pieces about six inches long at the top, marked each with the large crosses. The block inside the four corners designated *a-a* is the exact inside measure of the frame. The foot lever at the bottom is shown raised up, and the holder is ready for the frame in the flat to be placed ready for nailing. The top-bar is laid flat in the space at the bottom of the block marked *a* at each corner, and the end-bars stand upright in the grooves shown at the ends of said block. The bottom-bar is placed in position on top of this block; the foot-lever is pressed down, and the two strips marked with *x* clamp the frame solidly for nailing. The frame is now nailed; and then when the foot lifts the lever at the bottom, the job is done. It takes much more time to describe the process than to do the work, as an active nailer can at least run one a minute.

The two smaller crosses, lower down, show a shelf for nails which is divided into two compartments, one for the small nails and one for the larger ones for the top-bars. The device should be constructed so that the top leans away from the bottom at least eight or ten inches out of perpendicular, and the front should be of inch lumber.

I might add that the block referred to,

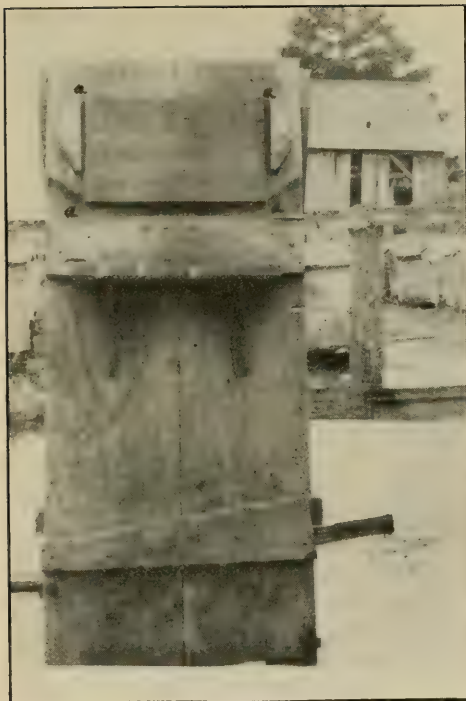


FIG. 1.—Front view of Byer's nailing-device.

and marked at each corner *a*, is simply made of a piece of inch lumber the exact size of the inside measurement of the frames to be nailed, and is fastened to the other boards that extend from the bottom upward.

Figure 2 shows the rear of the machine, and I think it is made so clear that little explanation is necessary. The strip from the foot lever up to the two diagonal pieces in the center is made of a heavy piece of band iron. It is fastened at the bottom with a small bolt, and the two pieces above are sawed so that there is an inset to allow the iron strap to enter them about two or three inches. Small bolts fasten them to the iron. At the top, each one of these diagonal pieces is fastened to the pieces shown on other side, marked *xx*, by wooden pins. When the lever is pressed down these pieces move down in the grooves as shown in the left side of Fig. 2, and so firmly lock the frames to be nailed that they can not move while the nailing is going on.

A REMOVABLE PORTICO FOR WINTER PROTECTION.

At different times I have mentioned the name of J. F. Davison, Unionville, Ont., as a beekeeper who believed in a low temperature for cellars in which bees are being wintered. Whether right or wrong, it is quite evident that for *his* cellar it is all right, as

he invariably winters his bees in first-class order. In addition to the bees wintered in the cellar, he also winters about as many outdoors, and the picture shown illustrates the plan he uses to protect the entrances from wind, snow, and also to keep the sun from shining directly in the entrance on days when cold winds are blowing but when the sun is quite warm, enticing the bees out only to perish as fast as they come out. The bottom-boards of the packed hives project about four inches, and the porticos shown rest on the bottom-boards, and project out at the bottom about two inches further than the bottoms of the hives. This allows the bees to carry out their dead; and if by chance the beekeeper is away and a warm day comes, allowing a good flight, the bees can find their way back to the hive. The portico always insures an air-space next to the entrance, no matter how much snow may be piled over the hives; and it is an effectual preventive of cold winds blowing in at the entrance. The sides of the portico rest on the bottom-board of the hive; and on the top a piece of band iron screwed fast to the hive is bent so as to turn down over the portico and hold it in place. The hive marked with a cross shows the "button" turned down in place, while the one at each side of this hive shows the

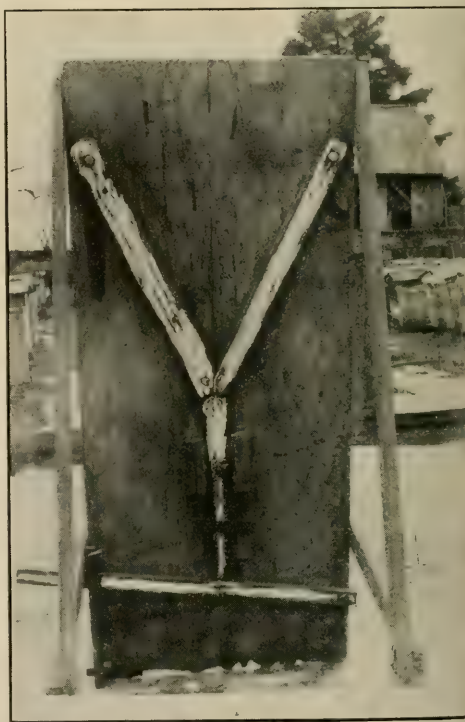


FIG. 2.—Rear view of Byer's nailing-device.



Apiary of J. F. Davison, Unionville, Ont., showing the removable portico for winter protection.

pieces of iron turned to one side and the portico ready to lift off the hive. These porticos have been used in this apiary for a number of years, and are as good as any thing I have ever seen for the purpose intended.

Note the nearness of buildings—apiary right in the center of a village, which shows careful handling on Mr. Davison's part, as the bees have been there for many years.

Mt. Joy, Ont., Canada.

A FEW WORDS IN DEFENSE OF WINTER AND SUMMER SHEDS

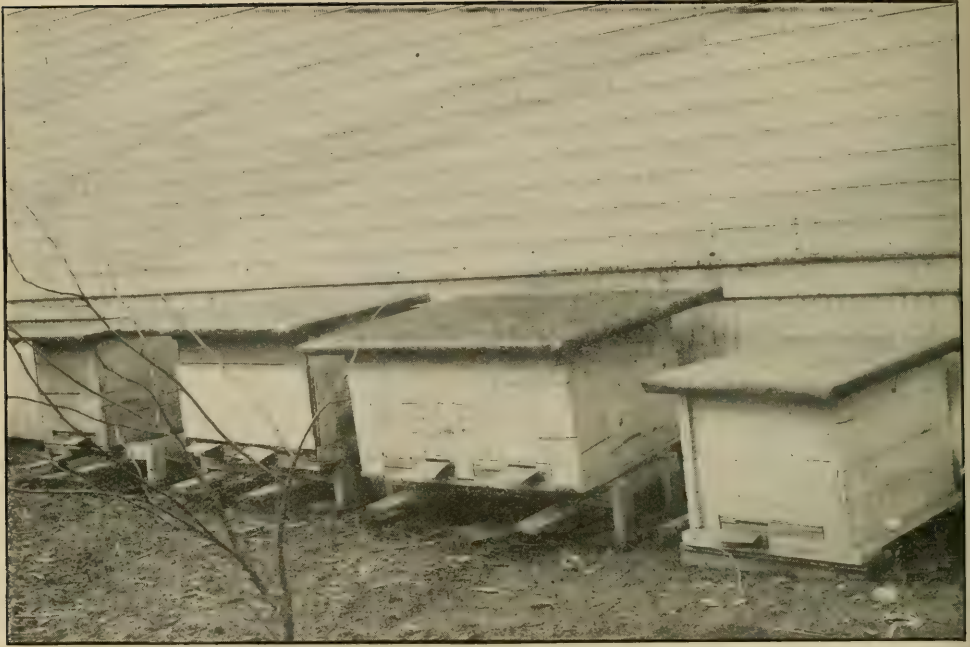
BY L. LIST

The Jan. 15th issue contains a severe criticism, p. 55, of the combined winter and summer shed described by me Dec. 1, page 766. It never entered my mind that the shed described should be the *ne plus ultra* in wintering contrivances. It is, however, quite satisfactory for a busy man who, because of other more pressing duties, can not, like the professional, aim to get from his bees "all there is in 'em." Of course it has a few drawbacks. I do not use this kind of shed myself, as Mr. G. could have noticed by carefully going over my words. I have regular cases for winter (see illustration), and shade-boards for summer. Still, I consider this shed of interest to some of the thousands who read *GLEANINGS*. Mr. Greiner himself, though he utterly con-

demns the whole thing in some sentences, and warns beginners not to adopt it, at several other places offers suggestions how it may be greatly improved.

I still believe that many of our small beekeepers, especially in the country, would do well if they, without much trouble to themselves, would protect their bees according to Mr. Knoll's way. Mr. K. is a prosperous, busy farmer, and only his spare moments can be devoted to bees. Thousands of other beekeepers are in a similar position.

But let us look at a few of Mr. G.'s objections. He considers straw poor packing material. For four successive seasons my bees were packed that way, and during that time but one colony, weakened by disease, was lost. No kind of packing could have saved it. Straw, by the way, comes through the modern thrasher in pretty fine shape—plenty of chaff in it too. And if it were not broken up, wouldn't it then give us innumerable dead-air spaces between the hive-body and the outer wall? Last year's winter was certainly a most trying one. Mr. K.'s bees came out in fine shape. So did mine. Another objection: Hives can not be easily manipulated. True, not so easily as when spread out in the open. But it can be done fairly well. I went through every one several times last summer, removing every frame. I admit that the bees are likely to be stirred up a little more than when they are entirely separate. But Mr. G. himself



Winter cases as used by L. List, Detroit, Mich.

says that one would not notice it very much in the sheltered position behind the shed.

Finally, the suggestion regarding a change in construction to keep out rain and snow is quite superfluous. Rain and snow have no chance to get inside of the shed, though it appears that way in the picture. Let me explain. That photograph was taken in the middle of summer, and the hinged front was simply let down for a few minutes, the hives being left standing apart. For winter they are moved close together. From one long and several short pieces of $\frac{3}{8}$ -inch stuff an entrance is made $\frac{3}{8}$ by 5 inches. Then a narrow board, just wide enough to fill out the space between hive and wall, is laid on top of these entrances lengthwise, inside of the shed. The space above is filled with straw. Last winter we had many a driving snowstorm from the east, the direction in which the sheds are facing. No snow ever got inside.

Detroit, Mich.

A WINTER CASE FOR TWELVE HIVES

BY J. F. ARCHDEKIN

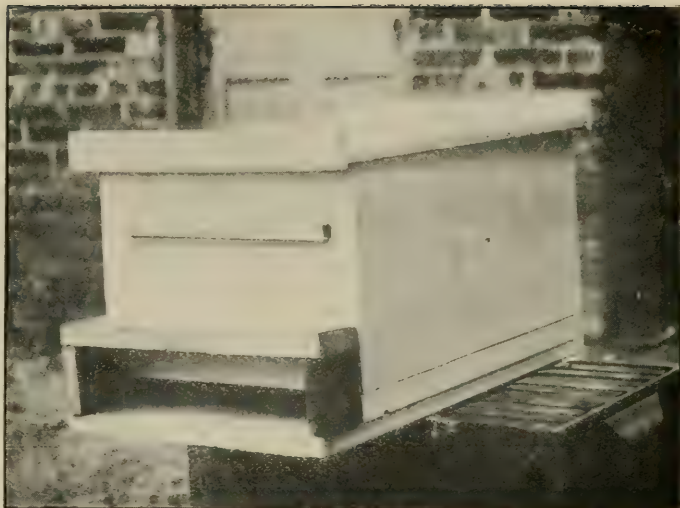
Having sustained serious winter losses in my apiary a number of times, I have been compelled to adopt some method of protection for the bees. While I have had excellent luck in wintering in the cellar, my last winter's experience with the cellar was dis-

astrous. But bees outdoors need protection. Although I have wintered bees on their summer stands in common single-walled hives with no loss, yet at other times I have had severe losses by this method also, and feel that this is to be discouraged as much as possible. The following is my way of making a winter-case. The only claim I make for it is that of cheapness and simplicity of construction. These are, in the writer's opinion, very important if they can be combined with ample protection.

Expenses make the profits smaller, and, after all, it is profits that most of us are after. An ordinary person can make a case to hold 12 colonies (eight-frame) in less than an hour. The materials required are four boards 1 x 12 x 18 (for 12 colonies); one 2 x 4 x 12; about 70 feet of 1 x 6 x 18 boards, and enough roofing-paper to cover as many cases as required. The 12-inch boards are nailed together with cleats, and form the front and back of the case. The front is now marked off, allowing 18 inches for each hive. In the center of each space, from left to right, the entrance is made $\frac{3}{8}$ x 8 inches. Cut the 2 x 4 into four pieces 36 inches long, and, selecting a level piece of ground, lay them flat and use the six-inch boards to cover them, forming the floor. The sides are set up, the ends boxed up, and a lath nailed across in the middle on top to keep it from spreading when the

packing is put in. The front should be set back three inches from the edge of the floor to form the alighting-board. This can be seen in the illustration, which shows the complete case. The sides should be toe-nailed to the floor in a few places to prevent spreading at the bottom.

The other picture shows the entrance cover which connects the hive entrance with the outside entrance, and allows packing the front of the hive. It should fit over the front of the hive-bottom instead of resting on it as in the picture, and extend forward $1\frac{1}{2}$ inches further than the bottom-board, so that the bottom-board may not stop up the outside entrance. If it is made this way it will prevent mice getting in the hives from the packing. In practice the entrance cover is slipped over the hive entrance, and the hive pushed forward so that the cover fits tight against the hive and the case. The case is two feet high, and gives room for a comb-honey super on the hive, which is filled with packing with a piece of burlap over the frame. I put a cover on the super and



Entrance protector to fit over the front of the bottom-board. This keeps the packing material in the winter case from filling up the entrance of the hive.

leave a small wisp of straw under one side so as to give some ventilation upward. Packing is put on top of the hives, and rounded up slightly, and the roofing paper is then put on. The case should measure 31 inches wide outside.

When spring comes one can tear down the case, and use the boards for other purposes, or store them away out of the weather for future use.

St. Joseph, Mo.



Winter case for twelve colonies.



FIG. 1.—One of Scholl's hive groups ready for the supers on the wheelbarrow close at hand. See "Beekeeping in the Southwest" for last issue.

TWO SUCCESSFUL EXPERIMENTS IN INTRODUCING QUEENS BY THE SMOKE METHOD

BY C. D. CHENEY

There being just now considerable mention of the Miller smoke method for introducing queens, the following may be of interest:

One Saturday a thorough examination of No. 9 was made. One fine frame of hatching brood was found, but not an egg nor the queen. Not being entirely satisfied, another examination was made on Monday, with the assistance of another person, but the results were the same. There were no eggs, no unsealed brood, and no queen. The colony was of medium strength. I mailed an order for another queen (it being then

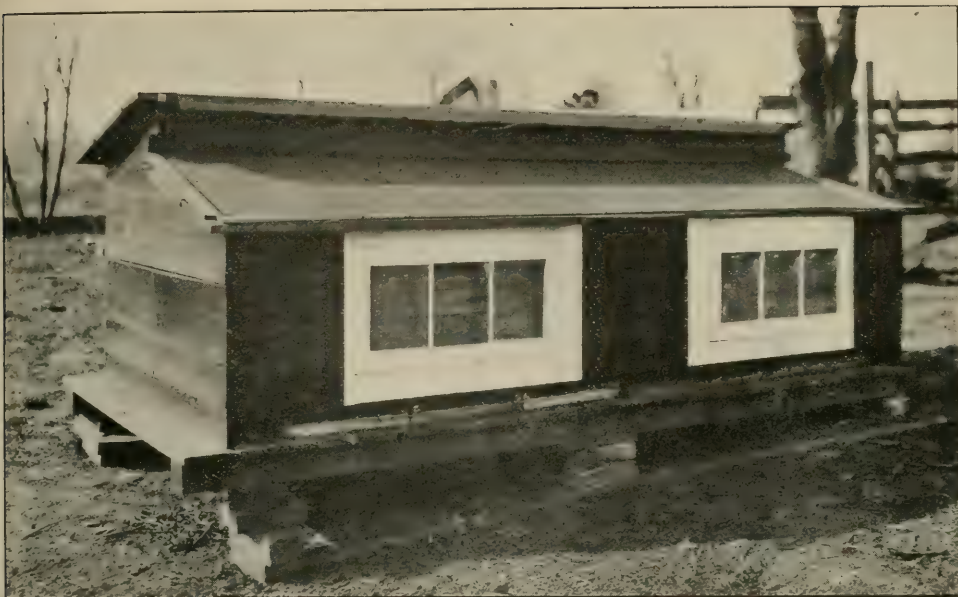
Aug. 25), after which I watched that hive. After a day or two I became convinced there must be a queen there nevertheless.

A queen came by mail on Saturday. The weather was hot and sultry, and the queen appeared very much exhausted. She was very large, evidently having been taken off the combs while actively engaged in laying, and had suffered severely in consequence.

Before introducing the new queen I decided to have another "look" for the original queen, and, sure enough, there she was, looking as fine and prosperous as could be desired. However, as it appeared that she was not "on her job" I caged her, and within 20 minutes "smoked" the new one in. I observed that she was very sluggish but I hoped she would revive when again placed among natural surroundings. On



FIG. 2.—Scholl's group of five hives with supers and covers placed on in a "jiffy." See "Beekeeping in the Southwest" for last issue.



Chicken colony house containing colonies of bees packed for winter.

Monday I opened the hive, and almost at once found her. She was barely able to cling to the comb, and within a few seconds the bees surrounded her rather roughly, though a little smoke dispersed them. A further search disclosed about a dozen queen-cells, each well extended and containing a larva. I destroyed every cell, and closed the hive. Then I sat down to think it over about as follows. The smoke introduction was very evidently a success; the bees must have recognized at once the condition of the new queen, and gone to work actively and very promptly to avoid probable queenlessness. The original queen must have begun laying between my second and third examinations, whereby the colony had eggs for the queen-cells. The new queen is a "goner." The original queen looks fine, and is this season's hatching. There is only one thing to do—put the old lady back on her job. Upon lifting the cover there was the new queen on top of the frames, without an attendant, just able to crawl. She was caged with four or five bees which appeared to attack her in the cage. The original queen was then smoked in at once. That was on Monday. Another examination on Friday showed the queen perfectly at home, and with a very good start at brood-rearing. Every vestige of the dozen queen-cells had been removed and all the breaks repaired.

This little experience presents two points for consideration, viz.: Two successful in-

troductions with smoke under trying conditions, and the risk in mailing queens right off the combs while distended and heavy with eggs. A rest of at least 24 hours might prevent much dissatisfaction and loss.

My regret at losing the queen (representing a good dollar) is considerably tempered by my success with the introduction. This method (which should be named the Miller) is such a saving in time, and appears so logically safe and correct, that I shall practice it until I get a jolt or until something better comes along, which doesn't seem likely.

New Jersey.

WINTERING TWELVE COLONIES IN A CHICKEN COLONY HOUSE

BY J. NIELSON

The illustration shows a cheap way of packing bees. The colony house is used in summer for chickens, and makes a fine place for bees in winter. This one house holds 12 eight-frame hives, six facing east and six west, with four inches of kiln-dried planer-shavings packed around them. The cover of each hive is taken off, and a tray with a burlap bottom over a two-inch bridge across the frames put on instead. The tray is filled with shavings, and then a tar-felt cap put over; so if the weather should prove bad when I take the hives out they will still be well protected against cold spring rains.



Apiary of Elias Fox, Union Center, Wis.

These were all given a good feed of sugar syrup with two parts of sugar and one part of water, and all just brought to a boil on the stove. There has been brood-rearing going on all winter here, and my bees that I have packed away in this colony house are stronger now with bees than last December, when I packed them. I got from two to four supers of comb honey per colony, selling at \$4.20 for 24 sections without crates, and \$40.00 worth of extracted honey. I had ten colonies last spring, and five of them were very weak.

Plattsmouth, Neb.

A TEN-ACRE FARM PAID FOR BY THE BEES

BY ELIAS FOX

Under separate cover I am sending a photo of my home here, showing a portion of my apiary. Only little over half the yard shows. I could not get it all in on account of the fence at the lower side. Neither could I show the honey-house, which stands at the right, just out of sight, in front of me. It was my intention to have the picture taken before the extracting-supers were removed, but the photographer was away.

I have here a ten-acre farm bought by my bees. My crop during 1912 was 10,500 lbs., principally all clover, from 100, spring count. I wintered 143 colonies in the cellar under the house, in No. 1 condition. My best colony gave me a surplus of 235 lbs. of honey, and swarmed besides. There was also plenty of honey left for winter.

Union Center, Wis.

A GOOD BEE-CELLAR A PAYING INVESTMENT

BY E. S. MILLER

In making a bee-cellar I would recommend the use of solid concrete—not cement blocks or brick if it is to be in clay ground, for the reason that they crack apart by action of the frost, and let in water. Nor do I believe that, as a rule, it will pay to use wooden construction anywhere if one owns the land and expects to continue in bee-keeping. I would have a cement floor sloping to a drain at the center; a ceiling lathed and plastered, and made as nearly air-tight as possible; double window shutters and doors. There should be a good honey-house above, and a chimney extending from the cellar-bottom on the east or leeward side to take the air from the bottom of the cellar.

A subearth air intake at least ten inches in diameter should reach from a point 100 feet or more on the west or windward side, and enter at the bottom.

The spaces between joists above the cellar should be filled with dry sawdust or other suitable insulating material. The cellar for 100 colonies should be 16 x 20, and 7½ feet deep.

Will it pay to build such a cellar? A good concrete cellar of this size, properly constructed, will cost approximately \$300. One man can put in 100 colonies in half a day, and take them out in the spring in about the same time. The cost of wintering would then be something like this:

Interest on investment at 6 per cent.....	\$18.00
Labor, putting in and taking out.....	3.00
Winter losses, 1 per cent.....	5.00
Depreciation of cellar.....	00.00
Depreciation of hives.....	00.00
Consumption of stores, 15 lbs. at 6 cts.....	90.00
Total, 100 colonies.....	\$116.00
Cost per colony.....	1.16

Now figure the same items when bees are packed outside, counting interest and depreciation on outer cases, and remembering that the consumption of stores will be about double.

It would seem that a careful consideration of these items will show that it is much more economical to put money into good standard hives and a good cellar than to expend it for thin outer casings or double-walled affairs with the consequent additional labor, depreciation, consumption of stores, and losses of colonies.

Valparaiso, Ind.

THE COLOR SENSE OF BEES

A Series of Interesting Experiments Showing that Angry Bees will Sting Black More than they will White; Bees Not Reflex Machines

BY JOHN H. LOVELL.

Mr. A. C. Miller's recent article, July 15, p. 487, on the relation of bees to black, seems to invite a reply. No doubt the sense of smell is well developed in bees. Although it has not yet been shown to be better than the visual sense, Forel and others have held the contrary. Certain odors bees find pleasing, others offensive. Cases where irritated bees sting objects because of their disagreeable smell may be at once dismissed. Some time ago Dr. C. C. Miller quoted the editor of the *Irish Bee Journal* to the effect that persons not cleanly in their clothing are often badly stung. Such discrimination is certainly to the credit of the bees.

"Bees like black," asserts Mr. Miller. Lubbock and Herman Muller both claimed

that bees preferred blue to other hues; but there are to-day few if any naturalists who believe that bees find an esthetic pleasure in blue coloration. Black is produced by the absorption of all the rays of light. There are none reflected to give pleasure or pain. Life is dependent upon light; and an animal or plant placed in absolute darkness will soon perish. The terrible sufferings of convicts confined in the dark cell have been graphically described by Charles Reade in "It is Never Too Late to Mend." It would seem to be impossible to imagine how a piece of black cloth or a black box could give pleasure to any animal. There never has been furnished, nor does Miller furnish, nor do I believe there ever will be furnished, a jot of evidence that bees like black.

I do not believe that bees are reflex machines. They possess at least a small amount of intelligence, defining intelligence in its beginnings in the words of Forel and others as the power of associating different sense impressions and instinctively making simple inferences. Bees observe and learn from experience, which they subsequently remember. I can not for a moment suppose that Mr. Miller believes that the fact that black bees are not stung to death by Italians, or that black insects belonging to other families are not attacked by bees, is evidence that they either like or dislike black. Huxley, after perpetrating in his letters a pun or an ambiguous joke, not infrequently followed it by the parenthesis "(Now, that is a 'goak')." Mr. Miller should have labeled the above statement "a goak." Usually, probably always, bees do not sting a black object unless it irritates or annoys them. A hive of gentle bees managed on the let-alone plan will hardly sting any thing.

The illustrations of black hogs and cows pastured near apiaries are not pertinent. The hives were fenced around with wire netting, and the animals could not come near enough to do any injury. Very likely they did receive some stings at first; but the bees speedily learned that there was no occasion for them to sacrifice their lives. A friend of mine keeps his hives, which are surrounded by a wire netting not over two feet high, in his hen-yard. When I last inspected them there were hens close to the netting; but neither hens nor bees paid any attention or manifested any fear of each other. It will be remembered that I hold that honey-bees neither like nor dislike black; but that, when angered, they will sting animals and human beings which are wholly or partially covered with black much more than they would if they were clothed in white, because they are more clearly seen.

Exception must also be taken to the statement that it is doubtful whether a sudden change from dark to light or *vice versa* affects a bee's vision at all as it does ours. The eyes of bees are of great size, and are highly developed. I know of no one else in America who has so carefully investigated their structure as Dr. E. F. Phillips, of the Bureau of Entomology at Washington. His figures show that each eye tube of the compound eye is connected by a nerve fiber to large and powerful optic lobes. There is, in my judgment, not the slightest reason to doubt that this highly specialized apparatus is strongly responsive to waves of light. Their impact incites molecular changes in the nerve fibers as certainly as a magnet influences the compass needle.

The experiments with the little house or tent of white cloth are of much interest in that they show that the flight of bees is influenced by the line of the horizon. In their endeavors to escape, the bees flew against the translucent walls always above the horizon line dimly visible through the white cloth. Buttel-Reepen gives an instance where bees at liberty showed by their manner of flight that they perceived the horizon line and were influenced by it. I regard this as good evidence that the compound eyes of bees can see distant objects.

In the experiment where there were four hives, one on the middle of each side of the room, I should attribute the ability of each bee to find its own hive to its memory of location. The late W. Z. Hutchinson once wrote me, giving an account of some observations showing that bees in their flight were strongly influenced by locality as well as by color. Buttel-Reepen also considers that memory of locality is very strongly exhibited by scouting bees. As an alternative there is, of course, the theory of Bethe, that bees are led back to the hive by an unknown force which draws them as a magnet draws steel. It is open, indeed, to the objection that there is no evidence of the existence of such a force. Or if one prefers he may believe with Fabre that they are guided by a sixth sense.

Personally I believe that bees flying out from the darkness of the hive see black objects much more clearly than they do white, which reflect all the rays of light. In the brilliant light of a mid-summer day a white object may easily escape attention. Our railroads do not use white signals in the daytime, but black. Newspapers and books are printed in black letters. In the arctic regions in winter, birds escape attention by their white plumage and mammals by their white fur. There are numerous instances where persons have attempted to pass

through a mirror, which largely reflects light, as through an open door; but no one, when the sun was shining, ever tried to walk into a black wall.

Mr. Crane did not exaggerate one iota when he said that it was the almost universal opinion among beekeepers that a black object is more likely to be stung than a white one. The recent articles by Mr. F. J. Cartan, of Oregon, and "The Beeman," hailing from New Mexico, show how widely disseminated is this view. The testimony cited in my paper was that of entirely trustworthy witnesses, including beekeepers interested in the subject chiefly from the commercial point of view, as well as the editors of GLEANINGS, Dr. C. C. Miller, Messrs. Crane, Townsend, and others. I infer from a personal letter received from Mr. Dadant some months ago that he also holds a similar opinion. Mr. A. C. Miller offers no reply to this evidence; he simply seeks to ridicule it. I am a naturalist; and while I do not consider it necessary to verify every observation when there is ample confirmatory evidence in its favor, yet when it is called in question it is my custom to appeal at once directly to nature by experiment.

The following experiments were made August 7, 1913, at 10 o'clock. The day was clear and calm, and the temperature in the shade was 80 degrees F. I was dressed wholly in white, but there was a black veil on my broad-brimmed straw hat. The white sleeves of my shirt were buttoned outside of a pair of yellowish-white gloves. Midway on the sleeve of my right arm there was sewed a band of black Cashmere cloth, ten inches wide, entirely encompassing the sleeve. No smoker was used, as it was desired that the bees should display their natural disposition.

Thus dressed I approached a hive of black bees, and, kneeling on the ground in front of the hive, I tapped vigorously with both hands on the top of the hive-stand. A large number of bees presently flew out of the entrance, many of which immediately attacked the black band on my right arm, while the left sleeve, which was entirely white, was scarcely noticed.

On the second story of this hive there was a super containing large pieces of partially filled honeycomb given to the bees to clean up. Standing on the west side of the hive, and facing the east so that the sun shone directly on both my extended arms, I lifted off the cover, and, introducing both hands into the super, lifted a piece of comb covered with bees and gently shook it. Instantly many bees flew toward me. A large number attacked the black band, to which

they were constantly coming so long as my hands remained in the super and disturbed them. An individual bee would not remain long upon the black band, but would soon fly against my veil, or circle about my head. So far as I could observe not a single bee attempted to sting the left white sleeve, and very few even alighted upon it. I closed the experience by walking away from the hive.

This experiment was repeated a second and a third time. During the second experiment I estimated the number of bees on the black band at a certain moment about thirty (I intentionally make the estimate smaller than I believe it to have actually been), while the left sleeve was almost wholly unnoticed. As in the previous experiment, the bees soon flew from the black band to the black veil, or circled about my head. So fierce was the attack that I found it advisable to withdraw to some distance. My third experiment yielded similar results to the two already described. I can not imagine how certain of the bees could have made greater efforts to sting the black band than they did. They seemed fairly beside themselves. To that part of my dress which was white the bees gave very little attention.

I now deemed it advisable to have a witness. A friend was summoned, and provided with a black veil and a pair of white gloves. She was stationed less than ten feet away, directly facing me, so that the behavior of the bees could easily be observed, and individual bees be plainly seen in the bright sunlight. Removing the cover I plunged both hands simultaneously into the super, which was overflowing with bees. What happened I will describe briefly in the words of my friend:

"A great many bees immediately flew to the black band on your right arm, although by no means all of the bees which left the super. I should estimate that there were at one time as many as forty on the black cloth. They were continually coming from the super to the black band, but they did not remain long upon it. I did not see a single bee upon your left sleeve, which was wholly white. There were hundreds of bees flying about your head or on your veil."

On August 12 I continued my experiments. The morning was calm and clear, and the temperature 76 degrees F. With the exception of a black veil I was dressed all in white; but on this occasion the band of black cloth, 10 inches wide, was sewed about my left arm instead of around the right sleeve as in the previous experiments.

At 10 A.M., facing the east as before, I lifted the cover from the same hive as in the experiments of August 7. As soon as a piece of honeycomb was shaken with both

hands a large number of bees flew furiously at the black band and endeavored to sting it. Only two or three bees were seen on the white sleeve of my right arm, and they did not attempt to sting. Both from the black piece of cloth and from the open super a great number of bees flew against the black veil. I then withdrew to a distance.

A little later I again approached the hive; and as soon as the combs were shaken a cloud of bees flew fiercely at me. At one time a part of the black band was almost literally covered with furiously stinging bees, and the black veil was assailed by hundreds. The right sleeve, wholly in white, and the other portions of my dress in white, received very little attention. As I walked away the bees followed me for a long distance. A third experiment yielded similar results.

I next opened another hive on the opposite side of my apiary. When I began thumping on the frames the bees at once attacked the black band and the black veil; but the right sleeve and the other white portions of my dress received little attention.

I now left the apiary and substituted for the black veil a new white veil which I had procured for this purpose. On my return the bees, as previously, sought to sting the black band; but the white veil was less attacked than the black. The difference was most astonishing. Whereas hundreds had before sought to penetrate the black veil, the number now was so small as to cause me no inconvenience. Those which did attack seemed much less persistent.

A third hive was opened. The black band on my left arm was furiously attacked as in all the previous experiments of August 12; but the white veil enjoyed much greater immunity from the attack than the black. So great was the difference that I propose hereafter when working among my bees to wear a white veil.

As a result of these experiments I have no hesitation in saying that beekeepers should always, when at work in the apiary, dress in white. The white veil which I used was made of mosquito-netting; and while I could not see through it as easily as through the black when looking at objects at a distance, there was little difference when I looked directly downward at the hive or the ground. Very likely some other material would give better results in this respect.

The results obtained in this series of experiments are most interesting and noteworthy. It is the first instance, so far as is known to me, where it has been shown conclusively by means of experiments performed directly for that purpose that angry bees discriminate against black. Strong colonies

of black bees were employed whose inmates were of a pugnacious disposition. While I had great confidence in the entire reliability of the observations cited in my previous article, the discrimination of the bees against black was far more decisive than I expected. Incidentally I take pleasure in extending my thanks to Mr. Miller for his criticisms, which led to the planning of the above experiments. They have opened a field for further work which I am hopeful will prove of value.

I do not consider that the series of experiments described above proves either that bees "like" white or "dislike" black. Their purpose was to sting the disturber of the colony. As they flew out of the super or hive, the band of black cloth most strongly attracted their attention, and became the chief point of their attack. Discovering their inability to sting through it they did not remain long upon it, but sought to reach me through the black veil. The sleeve which was wholly white was hardly molested because it escaped attention. In comparison with the piece of black cloth it was inconspicuous. For the same reason the white veil was less fiercely assailed than the black one. The behavior of the bees does not, therefore, indicate hostility to black or preference for white.

Waldoboro, Me.

[Mr. R. F. Holtermann, who paid us a visit a few days ago, remarked in the course of his conversation that there was one of his men who persisted in wearing a black felt hat; that he finally had to tell him that he would have to wear a white or a straw hat, the same as all the other men wore. He went on to explain that this black hat was constantly inviting angry bees; that it was the practice of him and all of his men to wear light clothing, not only to prevent stings but to stop would-be cross bees from following about.]

Some two or three years ago, Jay Smith, of Vincennes, Ind., told how a couple of dogs, one black and one white, went cavorting through the beeyard. The black dog was badly stung while the white one was not molested at all.—Ed.]

duced in that way I found two balled three days after, and queen-cells started. After making the bees release the queens, and destroying cells, they were finally accepted, although they still persisted in superseding.

Regarding virgin queens, I can give a plan that I have used without the loss of a single one, regardless of age. Here it is. I use the regular hive full depth, with division-board forming a twin nucleus, with $\frac{3}{4}$ -inch flight-hole at opposite ends. When I have a batch of old virgins I go to a colony having sealed brood over an excluder; brush all the bees off, and extract the honey. I replace it for the bees to clean up; then I take one frame of this brood with adhering bees and replace it in one side of the twin nucleus. I add an extracting-comb partly filled with sugar syrup, and plug the entrance with grass. I leave them confined till evening. By that time the bees will have gorged themselves to the limit, and will be crowding around like a flock of sheep. I then remove the grass from the entrance and run the virgin in and plug it again for a few minutes. I might add that the entrance should be plugged again early in the morning, as some of the old bees going home with their load of syrup will have marked the spot and return for more if during a honey-dearth. About 10 o'clock I open the entrance, and the bees by that time will have settled down to normal. I have never lost a single queen introduced in this way.

If your friends who have used the smoke plan for introducing laying queens will take the trouble to look those frames over they will, in a good many cases, find the queens laying and the bees raising supersedure cells.

I have had several young queens that were introduced safely, and had laid four or five frames of eggs, superseded about 12 days after introducing. I believe it is always best to look through a hive and to destroy the cells nine days after killing the old queen, as I am sure that at least a fourth of the queens introduced are superseded that could probably be saved if those cells were not allowed to hatch.

St. Eugene, Ont.

INTRODUCING VIRGINS REGARDLESS OF AGE

Danger of Supersedure of Queen in Smoke Method of Introduction

BY J. A. M'KINNON

Your editorial Sept. 1 regarding the smoking plan of introducing queens, while it is about the best I have yet tried, it is not always certain. Out of four queens intro-

Convention Notice

The 23d annual meeting of the Illinois State Beekeepers' Association will be held at the State House, Nov. 5, 6, 1913. Prizes will be given as follows: \$5, \$4, \$3, and \$2 for 1st, 2d, 3d, and 4th best essays to be read by the writers, and not to exceed 500 words. See page 83 of last (12th) annual report, or write to the secretary for particulars. The report of this meeting will go largely to make up our 13th annual report, of which every member will get a cloth-bound copy. Further individual notices will be sent to all the members.

Springfield, Ill., Sept. 15. JAS. A. STONE, Sec.

Heads of Grain from Different Fields

Good Yield of Honey in Spite of the Dry Weather

This has been the best year we have had for five or six years past in spite of the drouth which has cut crops at least in half, and the fact that there was no dew nights at all. What few bees there are left, that were taken care of and looked after, have yielded a profit to beat Standard Oil stocks.

May 10 I bought a colony for \$2.00. The lower story was well filled. I moved the bees three miles home, and on the 14th I put on a case of sections for them. Up to date I have sold 66 sections of honey from that colony. These sections test from 17 to 18 ounces each, so I have sold them by the section at 18 cents. I still have fifty or more sections ready to move at any time from those bees. I have been unable to fathom the source of the supply. I know of some alsike-clover fields, some two or three miles from us, that I have thought probably were where a part of it came from. One man claims that the red clover was so rich in nectar that it was actually dripping from the petals on dewless mornings when he went into the clover-fields for the stock. Any way, we are getting the goods, and the honey is of fine quality. Others did as well as myself in securing good yields.

So far as I have learned, there have been few swarms. Some careless ones that neglected their bees came to get sections for them after the flow was past. To be sure, a part of our flow was from the once despised sweet clover, but now looked upon by the farmers in quite a different light. One man this year has sown twelve acres for fertilizing, and others will follow his example. Alfalfa is also getting started, so that we hope in the not distant future that the good honey-pastures of former days will come again, and that commercial beekeeping will be as profitable as it once was.

Philo, Ill., Aug. 26.

M. L. BREWER.

Bees Winter Better When a Way of Escape for the Moisture is Provided

I have tried the plan of wintering my bees in the cellar and also out of doors. In either case I usually found the combs wet and damp in the spring; and often water would run out of the front of the hive, and ice form on the bottom-board.

Four years ago in December I bought four colonies of bees—big strong colonies with an abundance of honey. They were in two-story home-made hives. They had gunny sack over the top under a make-shift cover. Some of them were open at the corners, and the covers were loose. Yet those bees were ready to come out at any time the hive was disturbed in the least. No water ran out of the entrance, and there was no frost inside the hive. They stood right out of doors where I put them when they were brought to my place, and they went through some 40 degrees below zero all right.

I have cut twenty or twenty-five bee-trees here in Montana. Invariably in these trees the entrance is at the top of the cavity. I have read the discussions in GLEANINGS regarding sealed covers, absorbent cushions, etc. However, last fall I made a winter house. It is 16 feet long, 30 inches wide, and high enough to put in a double-story hive if I wish. I placed my hive without bottom-board on cleats on the bottom, and bored a $\frac{3}{8}$ -inch hole in the back end of the covers, and packed the extra space with alfalfa hay, coarse remains from the cows' manger, and set a plank slanting in front of the entrances.

When I opened the hives early in March I never saw a drier or cleaner lot of combs and hives for that time of the year. The dead bees on the bottom were dry and clean, and the bees wintered well. Some were getting short of stores, which I find is frequently the case in Danzenbaker hives. However,

I had reserve combs for them. As elsewhere, the winter here was not severe.

From the above observations and experience I am of the opinion that it is better to let the moisture out, and keep the hive dry than to keep the moisture in and have the hive damp, and a lot of wet ill-smelling dead bees on the bottom-board.

Belgrade, Mont., April 16. C. A. KINSEY.

Bees Packed for Winter so as to Allow Escape of Moisture from Hives

I have kept bees for some time, and have always had marked success in wintering them. I use a telescope cover for the hives, with a three-inch space on the four sides, and a four-inch space for the top. In the air space I pack planer shavings; and just before covering the top of the hive with the shavings I raise the lid and slip a ten-penny nail between the lid and the hive body. This allows the moisture to pass out and to be absorbed by the shavings. In the spring, when I unpack the colonies I find them nice and dry without any moldy combs. As a rule the shavings are very wet, even down half way along the sides.

Last winter I put 23 colonies into winter quarters, four being quite weak. When I removed the telescope covers late in March I found the bees in excellent condition with the exception of the four weak colonies, and did not lose a colony.

Some of the hives were as full of bees as is usual the first of May.

One hive in particular was so strong that I had to lift out the frames, and a pleasing sight met my eyes—a nice lot of brood was started, and one frame in which the brood was sealed, and this March 20. This seems especially remarkable as the climate up here on the mountains is rather cold, and the seasons are slow, it being a rule that fruit bloom is ten days to two weeks earlier west and a little south.

Philipsburg, Pa., March 20. W. N. ZEITLER.

A Word of Explanation About Feeding Back to Secure Well Finished Sections

On page 564, Aug. 15, Mr. J. E. Crane asks whether there is not some mistake about getting 15 to 25 supers per colony finished by feeding back in the two or three weeks between clover and heartsease. This statement was based on memory, as I have not kept an exact record; and while I am quite certain one can count on 15 supers in three weeks per colony, yet it might be too much to count on 25. As I said, the character of the colony and weather conditions govern the amount finished. But with hot weather, strong colonies, and plenty of feeder surface, the section work goes very rapidly. We run up to five or six supers to the hive after a few feeds, and look the supers over about every other day, and add new ones next to the brood-chamber, or else heavy feeding will bulge the sections already on.

The bees must have plenty of room to store; and as fast as the partly finished sections are about drawn out, more partly built ones must be added. As regards the time, one usually has more than two or three weeks, especially in years when it becomes necessary to feed back. Frequently the early flow closes July 1 to 10, and perhaps no fall flow, to amount to any thing for section work, follows.

Such seasons are the ones when there are apt to be unfinished sections. We can begin a little before the flow ceases, and continue into the fall flow if it is light, so we really have perhaps nearer a month for this work than two or three weeks. I may have had the idea of counting on 15 to 25 supers per colony, and failed to state it clearly.

There is so much variation in the conduct of bees

from year to year that it is difficult to write of them so as to be understood. Sometimes they fill the brood-combs very heavily when fed to finish sections, and at other times not a great deal is stored there. My thought was to give a general idea of how to get partly built sections finished, and about how fast we could count on doing it, and let every one work out the details, varying them according to the need of the different seasons and localities. At this date, Aug. 20, I am feeding back to two colonies, and the work is going well; but as the early flow lasted until August, and tapered off very gradually, I had only 15 or 20 supers to feed back.

Dunlap, Iowa.

E. S. MILES.

The Water-bottle for Queen-cages; a Good Testimonial from One of the Old Veterans

I am glad to see that you are going to add a water-bottle to your queen-cages. Years ago I bought of A. I. Root an imported queen, and home-bred queens all came through in good shape with their little water-bottles. Contrast this with the present method. Queens I bought of Messrs. Moore, Robey, and Hand all came dead. I suggested softer candy to two of the gentlemen, and the next queens came through alive. More than half the queens shipped here are dead on arrival. I know a man who returned queens four times to the same shipper. The fifth came dead, and he let it go at that—said he was ashamed to return her. All of these queens could have been saved if shipped as Mr. Root shipped them 35 years ago.

I question whether we have improved the frame designed by A. I. Root. I had some two thousand combs built in these trussed frames. There was no sagging of the top or bottom bar unless the wire broke. This is more than I can say of the frames I have now.

Bakersfield, Cal.

C. G. KNOWLES.

[My good friend, I am greatly pleased to see your indorsement of my queen-cages and frames of olden times. If I am correct, the preference seems to be strong for a heavier top-bar; and with these heavy top-bars the wire trussing I devised seems to be unnecessary. The heavy top-bar (an inch thick or more) does away with burr combs over the frames to a great extent. See A B C book, p. 130, for a full discussion of the matter.—A. I. R.]

The Smoke Method of Introduction Again Successful

When I received queen No. 2 I removed the old queen from a small colony of what I would consider pure blacks and laid the new queen on top of the frames. In 24 hours I looked in and found the queen still in the cage, but the bees had balled her and were stinging and biting her. I made the discovery that they had started many queen-cells. I said, "You are not going to kill that queen," and I plugged up the hole in the candy so that they could not reach her, destroyed the cells, and placed the queen back on the frames. The next day I found the same conditions and again destroyed the cells. The next day it was the same, and I concluded to try Arthur C. Miller's plan of introducing as given in GLEANINGS, June 1, p. 370. I did not tear the cells down, but administered the smoke as directed, and released the queen. I left them alone two days and looked in, and there was the queen as contented as if she had been raised there. The bees that came with her were also there. This is the first time that I ever had a swarm build queen-cells when there was a laying queen caged in the hive immediately after the removal of the old queen. I am also sure that I would have failed with any method that I have previously tried in introducing.

I never have read a report of the effect of a high

dry altitude on the candy in a queen-cage. It sometimes becomes so hard that I doubt if the bees would get it out in a week. I had this experience in Fallon, Nevada, last year.

C. E. HAMMOND.

Vivian, La., Aug. 8.

Sac Brood

I am writing you in regard to sac brood. Something got wrong with my bees, and I sent two samples of brood at different times from two hives that were affected to Dr. Phillips, at Washington, and both times he reported sac brood, and said that it was not serious, and no treatment was recommended. The two colonies affected were weak, so I burned them before I got his answer, thinking I had foul brood. I have a colony now that was affected with only a few larvæ in one comb, so that I cut them out and am writing you to see what I must do to them.

ROSCOE McELROY.

Morganfield, Ky., Aug. 18.

[Sac brood is not dangerous nor contagious, or at least only slightly so. We are sorry that you burned up your colonies. It is found in the height of the season in most apiaries in the United States. It usually disappears in a short time, and the only damage it does is to kill half a dozen or so larvæ out of possibly twenty-five or thirty thousand other individual larvæ in the hive. Such loss is hardly worth taking into account. If you will apply to Dr. E. F. Phillips he will send you a government bulletin on sac brood. Address him, Department of Agriculture, Washington, D. C.—Ed.]

Meeting of the Carolina Beekeepers' Association

The Carolina Beekeepers' Association held its mid-summer meeting in the convention room of the Langrenhold, Asheville, N. C., July 26. The meeting was one of unusual interest. O. Brumfield, J. W. Gooderyn, and others discussed the merits of the ten-frame hive over that of the eight frame, with the result that each hive had an equal number of advocates.

Dr. B. F. Landis talked on the subject of the best bee for the South. A discussion followed, and the matter was settled in favor of the pure Italian.

C. W. Harmon, a packer and dealer in fine honey, gave the convention a treat as to the best methods of preparing our product for the market.

Our society has doubled its membership in less than 12 months. The next meeting will be held in Black Mountain, N. C., Aug. 29, at which time new officers will be elected.

A. L. BEACH, Sec.

Virgins Lost Because of High Wind

Your editorial, August 1, page 513, states that a high wind July 13 and 14 left your queen-rearing yard almost queenless. I have had trouble this season. I have been replacing virgins continually that went somewhere. We have had a great many high winds preceding storms, and at other times. I can now understand why so many have been lost.

Cranbrook, B. C.

T. S. GILL.

Sweet Clover and Alfalfa Stood the Drouth

This has been a dry year. We did not get any rain this summer. The bees did better than they did before for eleven years. Some for the last three years did not make their own living. Through all the dry weather the sweet clover and alfalfa did finely. This is the first year the alfalfa ever honeyed. I have got 26 hives. My best hive made 115 pounds, and some made nothing. I will get your A B C book and raise by own queens next year.

Fredonia, Kan., Aug. 26.

CHAS. HEROLD.

Our Homes

A. I. Root

Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you.—MATT. 6:33.

Lay not up treasures for yourselves upon earth, where moth and rust doth corrupt, and where thieves break through and steal.—MATT. 6:19.

In our last issue, page 663, I suggested to our good friend Doolittle that if the world could be taught the importance of seeking *first* the kingdom of God and his righteousness, all our State and national troubles would be ended; but thinking it over since then I am led to believe that I did not half realize what I was saying. Let us consider the matter a little. What is the world just now seeking? My good friend, what are *you* seeking? And, to come still nearer home, I have been asking myself what am I seeking? I have told you several times in years past, that my thought was largely devoted to hunting up "God gifts." There is a great deal said about the "high cost of living of late;" and several have suggested that we had better put it "the cost of *high* living," putting the emphasis on the word "high." Well, I have found enjoyment and happiness—yes, great happiness—by showing the readers of GLEANINGS how they could live and keep in good health without having it cost all one can earn. Our friend Terry has given us excellent lessons and suggestions along this line; and I fear a great many of us, men and women, have mistaken and exaggerated ideas in regard to what we must have to be decent and respectable. When I talked about having a little mill and grinding our own flour and wheat so as to have *better* and *cheaper* food, a great many were inclined to sneer at the idea. Let me branch off a little right here.

The good people in Cleveland have inaugurated what they call the "Fresh-air Club." They gather up a lot of poor children during the hot summer months and send them out into the country to get fresh air and outdoor exercise. This society asks the country people to take one or more of these children. For several years quite a few have come here to Medina. Now, this is all right. It is a splendid undertaking. Keeping these children free of charge for two or three weeks is, *without question*, seeking the kingdom of God and his righteousness, instead of living altogether for self; and I hardly need tell you that self and selfish interests are not "God's kingdom" by any means. It is something of a task to take two or three youngsters, brought up in the streets of a large city, and make them inmates of your home. If you have tried it you know something about

it. There is a difference in children, of course. Some will meddle with and destroy things, and have to be watched almost constantly. Others, who have been properly brought up, will be orderly and helpful. Now comes my point:

A couple of children that came from the city were taken by a family of moderate means. Pretty soon the children began to grumble, and they grumbled at having steel knives and forks on the table. They had not been used to that way of living. In another case a family of moderate means undertook to care for three children. I believe, however, that somebody who was abundantly able paid for the board and lodging of two of the three. Well, one little girl one day volunteered the information that her pa in the city received quite a little higher wages than the man who had volunteered to help care for the poor children!

I have related the above incidents to show you that even the children have exaggerated ideas of how we ought to live. Their parents, evidently, had not been seeking first God's kingdom and his righteousness.

Since we have been discussing the problem of the high cost of living, somebody has suggested that the "high cost of dying" ought to receive some attention. When my good friend Metcalf helped us to put the Anti-saloon League on its feet something over twenty years ago, he gave liberally, and also gave repeatedly, to get the new organization under way. He was always giving for praiseworthy undertakings all his life; but when he came to die he protested against money that might do good being buried up and wasted on an expensive coffin. He put a clause in his will saying that his coffin must not cost over \$25.00. I am told that, when the friends went to the undertaker's, they could not find any kind of coffin so cheap. You who have paid funeral bills know how it is in your own locality. An article in the Cleveland *Plain Dealer* of a recent date intimated that there is a combine among undertakers, and that they have a peculiar opportunity to combine, because no one ever disputes or questions the correctness of funeral bills.

Our friends will recall that, for a great part of my life, I was an enthusiast on greenhouses; but of late I have gradually lost my interest in them. Shall I tell you why? Because the greenhouses nowadays are mostly devoted to growing stuff for funerals. I have seen a wagonload of beautiful and expensive flowers thrown away at the funeral of a comparatively common-

place individual. I do not know whether these flowers are buried with the remains or whether they are dumped in a heap in the back yard. I believe, however, that seldom is any use made of them. I have all along protested against these customs, because I have happened to know that a great many times the bereaved family sadly needed the money that was just literally "dumped" into the fire. In olden times it was customary to bury things with the departed loved one, thinking he or she might need them. The Indians had a tomahawk and bow and arrow put in the grave, thinking the dead warrior might need them in the new hunting-grounds. And I believe the heathen in some nations still put in food for sustenance during the "trip across the dark river." While there are starving people by the hundreds and thousands in different parts of the world, great sums of money are buried in the ground where they can not possibly do anybody any good.

I have said more on this line of my subject than I intended; but is this sort of work seeking the kingdom of God and his righteousness? and is it "laying up treasures in heaven"? The Savior urged us, you remember, to put our treasure where it will not rust, and where it can not be stolen by thieves. Are we doing this? Here is a clipping from the *Cleveland Plain Dealer* of Sept. 11. Read it, and see what you think of it:

PAYS \$30,000 FOR BEAUTY; ASTOR'S WIDOW INSTALLS LUXURIOUS ROOM ADJOINING BED-CHAMBER.

NEW YORK, Sept. 10.—Mrs. Madeline Force Astor, widow of John Jacob Astor, will remain beautiful if a \$30,000 beauty parlor can effect that end. She has installed an electric beauty room on the second floor of her Fifth Ave. home, adjoining her bedroom.

The room, 9 by 15, is the quintessence of luxury. The white tiled floor is concealed by an oriental rug, while paintings, plate mirrors outlined in gold, and concealed lights are in the room. Gold and pearl are used wherever possible.

A modified barber-chair is in the center for use during the hair-dressing, massage, and other operations of the beauty doctor.

The world knows little or nothing about Mrs. Astor; but the world does know very much about John Jacob Astor. Has this woman ever done any thing for the world that should entitle her to this enormous wealth to spend for self as she chooses? No wonder the hard-working people are forming "unions" and sending up protests against this unequal division of wealth. Now, I am not going to turn socialist just yet. I hope John Jacob Astor secured his great wealth as the result of honest and legitimate trade and traffic. But how about his wife and children? How about thousands, including Thaw, his mother, Diggs, and Caminetti, who are trampling our laws under foot,

and saying virtually to outraged humanity, "Help yourself if you can." As I dictate these words, however, I can thank the Lord that there seems to be a prospect of better things, and, not only that, but Diggs and Caminetti are to go to prison. Of late, however, it transpires that after they are put in prison at great pains and expense, they do not seem to *stay* there. The man who led the gang that lynched and cruelly murdered poor Etherington at Newark, Ohio, is now at liberty again. Notwithstanding the saloon-keepers and liquor-men fought hard and long he was finally sentenced to twenty years in the penitentiary; but when he had been there just *two* years the whisky gang got up a monstrous petition and had him "pardoned out."

Dear friends, it just now occurs to me that I am making a doleful story so far, and may be I had better drop that part of it. It is a comparatively easy matter to point out the faults of others, of our administration, of the way society manages things, etc. But it is a harder matter to reconcile the fact that we are *all* sinful. We are all of us—yes, the best of us—spending a great deal of time and money in seeking other things than God's kingdom and his righteousness. We are more or less selfish; and this same selfishness blocks the way of getting what we are seeking. Thousands are learning a lesson—yes, I think more than ever before. People who have great wealth are, some of them, using that wealth to lay up treasures in heaven.

Instead of seeking first the kingdom of God and his righteousness, there is a new fashion of late, and it would look as though a good many people had adopted, as a motto in business, something like this: "Seek ye first the dollars and cents belonging to your neighbor; and (if he does not make any fuss about it) you will be heaping up treasures for yourselves."

I hardly need remind you of the public officials who, while receiving a liberal salary for looking after the interests of the people at large, accept a bribe for doing just the opposite; and I hardly need remind you of the way in which barbers, dentists, some doctors, perhaps some lawyers, "hold up" their victims if there is nothing in particular to hinder them from doing so. If you go down to Florida, be careful to ask prices in a barber-shop, at the dentist's, at the drugstore. If they have reason to suspect you are a new comer, and are unacquainted with prices and customs, you will be pretty sure to be "bled" unless you make a bargain beforehand. Now, please do not understand me as saying that this is the rule.

There are good Christian people, a lot of them, in Florida and everywhere else, who are *really* seeking "God's kingdom," and *trying* to lay up treasures in heaven. But this fashion of holding up people is in danger of spreading everywhere, among young and old. Let me give you one illustration.

In our capital city of Columbus, Ohio, I stopped to have my shoes shined up a little, after some dusty travel. The boy did a very neat job; and noticing some shoe-laces on a hook by his stand I told him he might replace my old soiled ones with the new. After he had my shoes neatly tied up I asked him how much the bill was. He replied, "Twenty-five cents."

"Why, my young friend, your sign here says, 'Shine, 5 cents.' Do you mean you want 20 cents for a pair of shoe-laces?"

"Yes, that is the price for those extra-nice shoe-laces."

You see the boy was up with the times. He not only had my shoes nicely shined and tied up, but he had me "tied up" also. I could not ask him to undo the laces and hang them up again on the hook, for they would be second-handed. Should I quarrel with the boy, even if he did charge 20 cents for a pair of laces, knowing that two pair just as good are usually sold for a nickel? I imagined his eyes twinkled as he saw that he had me "in a corner." I gave him the quarter, mentally deciding that next time I would stick to my rule of inquiring the price before I invested, even if it were only a pair of laces.

Now, dear friends, it is not only for *your* good, but for the good of every one who has something to sell, that you make it a rule to ask the price beforehand. It will help you and help the other man, or boy, to get nearer to both of the two precious texts we are considering.

Let me suggest to our friends who are writing me letters lately in regard to socialism, that the man who uses his money to start a factory, and gives employment with fair wages to hundreds of men, women, and children, is, in my opinion, laying up treasures in heaven. If the article that he manufactures is better and cheaper, and something that is needed in every-day life, his money is really invested in a way that may be called "treasure in heaven." Suppose this factory is started in a rural community and is for the purpose of manufacturing hoes. If the proprietor secures better steel than has been used before, makes a lighter implement, hunts up better wood for a handle, and if he sells it at a smaller profit than other makers, he does good in two or three ways. First, he gives a poor man a nice hoe for a little money. Then by the inven-

tion of this beautiful bright and shining hoe like the one I have used nearly every day of my life, he induces old men and those loafing around in towns to get out into the garden and help "reduce the high cost of living." Now, this manufacturer could not have done any thing of the sort without having considerable capital. If he is a Christian man (and he certainly ought to be, and thank God there are lots of men of means who are Christians) he can easily be a personal friend, I might say, to every one in his employ, and to every one who buys one of his hoes. I might say the same thing about hammers. When Maydole first made a better hammer than the world had ever before seen, he sent out men to sell them. These men would drive a nail through a board, and then by means of the beautiful well-tempered claw, they would grab hold of the small end of the projecting nail and pull it through the board, head and all. My friends, you have probably tried to get along with a poor hammer, and I hope you have also found out what can be done with one of the very best Maydole hammers.

In the last few years it has got to be quite the fashion to put great values on special things.* Last summer the newspapers gave several accounts of women who have been robbed at fashionable watering-places. They carried along to these summer resorts diamond necklaces worth thousands of dollars. I am old-fashioned, I must confess; but I have reason to believe "there are others," and I have said several times to Mrs. Root, "What in the world does a woman want with a diamond necklace that cost enough to buy half a dozen good big farms? What good does it do them to invest money in that way?" And if the poor deluded creature in seeking for happiness must have the senseless bauble, why on earth should she carry it to a watering-place or have it in a Pullman car where the porter, who is perfectly innocent, may be worried to death because he is accused of stealing it? If Billy Sunday (may God be praised for what he has already done) or some other evangelist like him has been the means of getting such women—yes, and men too—to give up their diamonds, and "invest" the money in "treasures laid up in heaven," we can all rejoice that God's

* Just recently I noticed they are putting great value on special furs. I am told by the papers there are fox skins worth—no, I mean fox skins that are *called* worth—\$10,000; and if I am not mistaken I read of a pair of silver foxes that were sold for breeding purposes for \$60,000. These foxes that are worth such a pile of money are bred on Prince Edward Island, Canada. Can we not take it for granted that it is the women-folks who are mostly to blame for putting these tremendous values on a little piece of fur?

kingdom has come here on earth. Now, dear friends, let us get down home. Are you and am I, as we approach old age, seeking first the kingdom of God and his righteousness? Are you and I both making it our careful study every day to be laying up a little more treasure "where moth and rust doth not corrupt, and where thieves do not break through nor steal?"

WHEN LIFE LOOKS BLACK AND BLANK, WHAT SHALL WE DO?

Mr. Root:—I wrote you a few weeks ago inclosing an advertisement clipped from *Suburban Life*, telling of a new method of growing celery, etc. You also wrote me a personal letter upon receipt of mine, and it is for that letter I wish to write you now, thanking you for the way it was worded, for you finished the letter like this: "From your old friend A. I. Root."

When life looks as black to others as it does to me, a friendly word like that is as a glass of cool water to a thirsty man in the desert. I am glad I have an old friend. I wish I had some young friends too, and then they would not die so quick.

SELLING SECRETS: RIPENING TOMATOES UNDER GLASS, ETC.

I was tempted to send a dollar to another party who has a secret for the benefit of market-gardeners, and he wants a dollar for it. A party advertises in *GLEANINGS* that he has a method of ripening green tomatoes in November. He says, address with stamps. I sent him a stamp and asked for particulars. He wrote me he would mail the particulars for a dollar; but as it looks so much like the celery deal I will not send my hard-earned dollar.

W. G. BRAINARD.

Gouverneur, N. Y., Sept. 14.

Below is what I replied to the above:

Friend Brainard, is it not at least partly your fault that you don't have friends? Are you reading my talks through *GLEANINGS*? and are you reading your Bible and keeping in touch with Christian people? Are you going to church and Sunday-school? Are you trying to make the world better? Of course, I don't know your circumstances; but if you are interested in exploring God's gifts and high-pressure gardening, you ought to be thankful and happy.

Don't send any money for secrets. No good thing ever came in that way. I have taken the man to task in regard to green tomatoes, but he don't seem to want to let me have his secret, even if I offered to send him the dollar.

May the Holy Spirit help you to see what a precious gift is human life, and help us to see also that even the obstacles that lie across our pathway are often evidence of God's love if we take them in the right spirit. "Whom he loveth, he chasteneth."

I think I shall have to say a word more about the advertisement of a plan to have ripe tomatoes in November, etc. It was given in two issues of *GLEANINGS*—Aug. 15 and Sept. 1, as follows:

Have nice ripe tomatoes in November from your late green crop. Ripen without sunshine. Let me instruct you how. Address, with stamps, 520 Atwood St., Longmont, Colo.

The above reads as if the secret or the discovery would be sent on receipt of a couple of stamps or whatever the applicant saw fit to pay him for his trouble. It transpires, however, the advertiser (who

does not give his name, you will notice) wants the stamp to pay for sending his circular. This advertising circular tells you you can not have the secret without sending a dollar. Had we not supposed (as every one would suppose) that the instructions were given for the stamps, it would not have appeared in *GLEANINGS*; and this is to say that if any of our readers have been misled, and have sent a dollar in response to the advertisement, they can have their money back by letting us know. Our experiment stations have said repeatedly that no good thing in gardening or agriculture ever came by buying secrets. Perhaps I might add what is generally well known, that the great tomato industry in Florida is built up by gathering the tomatoes just before they begin to color. These are then wrapped up almost air-tight and shipped north. A plan was also given in *GLEANINGS* some years ago of pulling up the vines just before frost comes and spreading them out on straw in cold-frames under glass. The cold-frames are usually unoccupied at that season of the year, and the tomatoes ripen beautifully, and are sold at big prices in the North about Thanksgiving time.

A LEVEL-HEADED FARMER.

One of our people sent me the following clipping from some periodical:

I do not know when I have been so impressed by an item in a newspaper as I was by one I came across last night, while reading the exchanges that reach my desk. It appeared in a small county-seat paper published in a prominent grain-belt State, and was to this effect: "One farmer near — lost forty pigs during two days and one night. When sympathy was offered him over the financial disaster, the farmer said he felt thankful that such plagues stayed around the barn and did not enter the house."

While we honor and respect the good farmer for remembering, even during such a loss, that the loved ones in the home are of incomparably more value than the pigs, I want to say a word on another line. We do not know what State he lives in, but I believe that most of our States have experiment stations; and what are experiment stations for if not to help out farmers in just such calamities? Boiled ham (suitable for sandwiches) is now 40 cts. per lb. here in Medina, and 40 or more in Florida. Heading off the hog cholera by scientific means is protecting the poor hardworking people; and, if you will not accuse me of going to extremes, I should like to suggest it is also laying up treasures in heaven. If I am correctly informed (although I am not in the "pig business" but only a chicken man) our Department of Agriculture is getting the upper hand of just such troubles as are spoken of above.

High-pressure Gardening

"A CORN CATECHISM;" OR, IS IT POSSIBLE TO
RAISE 100 BUSHELS OR MORE OF CORN

PER ACRE UNDER OHIO CONDITIONS?

The above is the title of a very valuable bulletin of 16 pages, sent out by our Ohio State University. It gives directions, boiled down, for securing a good corn crop, that are exceedingly valuable. My impression is that the average farmer in the average locality can make 100 bushels per acre, without much question, if he follows directions.

The matter of barren cornstalks, which I considered in our last issue, is gone into quite thoroughly. To get this large yield one must have a perfect stand, or very near that. No hills should have less than three stalks, and none more than five. To do this you will have to do some thinning out. But I think this will pay in the end. Selecting your seed ears from the field in the fall is an important matter. Taking the corn out of the cornerib, as I have said, is a very poor way of improving your strain of corn. Two years ago I went through our cornfield and clipped off the stalks just above the ear for ears I wanted to save for seed. When husking time came we took four or five men out of the lumber-yard to do the husking. The man who was chosen as foreman, by my directions told the huskers to be very careful and save out the ears from the stalks that were clipped. What do you think happened? Most of the huskers were used to farmwork and husking corn; and in spite of orders all but the foreman paid no attention to the clipped stalks, thinking, probably, they knew more about picking seed corn than I did, and gave as an excuse that the proper way to get seed corn is to pick it out of the crib. Let me say again, your selected ears for planting should be taken from a hill of three or four stalks. Then you have your perfect ears in spite of environment. If a nice large ear is selected from the crib, the chances are great that it was taken from a hill containing only one stalk of corn. The ear was large and fine in this case because it had a better chance than the rest of the field, and not because of extra vitality and pedigree.

THE DASHEEN IN THE WEST INDIES; THE ORIGIN OF THE NAME, ETC.

Mr. Root:—I see by GLEANINGS that you and your readers are interesting yourselves in dasheen as a possible crop in the States. I grow this plant extensively as a "catch crop" between young cocoa trees, and wish to point out that the man who wants a crop (*i. e.*, tubers), puts in plants; and the man who wants plants put in tubers. Especially with

your short summer in Ohio it would be rather hopeless to expect a crop from tubers; but I quite understand that in Florida it might be different. As these plants thrive here with a rainfall of 100 inches a year they will naturally want more water than your annual rainfall gives them, and flat culture. I am sending you a dozen plants by parcel post, and want you to let me know in what condition they arrive. One plant is trimmed ready to plant; from the rest, remove all roots and dark root stock (put them in ground apart to make plants), and also skin away any discolored root sheath from plants, leaving a narrow line only of root stock for new roots to spring from.

Do you know how the word "dasheen" is derived? It was originally called in French patois "chou du chine" (shoo d'sheen), *i. e.*, the Chinaman's cabbage; but the *chou* has been dropped, and the English accent has altered the two last words to "dasheen."

GEO. S. HUDSON.

Errard Estate, St. Lucia, W. I., Aug. 19.

I must confess that I do not exactly understand about "tubers" and "plants," as mentioned above. The only thing we have any knowledge of so far is the tubers furnished by the Department of Agriculture, about the shape of an egg, only smaller, and these are what we planted. Perhaps the dasheen mentioned above is different from the Trinidad dasheen such as we have.

The sample "plants" so kindly furnished came to hand Sept. 17, just a little less than a month from the time they were mailed. So far as I can judge they stood the long trip finely, and came to hand with the white shoots already started, and an abundance of new white roots. In fact, they looked as if they had been growing on the way. I planted them out in good rich soil, and with the gentle shower that came right afterward I think every one of the dozen will grow. If frost comes I expect to protect them until we go back (Nov. 4) to our Florida home, when they will be moved again to our southern clime.

The name, "Chinese cabbage," may, perhaps, give us another clue to this considerable family of dasheens.

DASHEEN AT THE BATTLE CREEK SANITARIUM.

The following clipping appeared originally in *The Vegetable Grower* for Feb., 1913, and later appeared in *The Battle Creek Idea* for March 16. With it is a beautiful picture of dasheen sprouts in a greenhouse. It describes the efforts Dr. Kellogg is making for his patients.

Of course, it is necessary in a sanitarium that the food be as palatable as possible. Besides, it is the constant effort of Dr. J. H. Kellogg, the superintendent of the sanitarium, to provide as large a variety in the diet as possible. He has recently added to the menu a new vegetable, dasheen, which the United States Department of Agriculture is anxious to introduce into general use. The plant somewhat resembles the potato, and some people find it very palatable. The green shoots can be used like asparagus,

while the tubers can be served as potatoes or be ground into flour. The sanitarium has taken the entire product of dasheen of the Government Experiment Farm at Brooksville, Florida, last year. This amounts to more than a carload. It is planned to raise a considerable amount of this vegetable in the greenhouses for winter consumption. An experiment will also be made in growing it out of doors, the plants being started in the greenhouse.

Following this the *Idea* comments editorially:

The sanitarium, by the way, is harvesting its first crop of dasheen. The accompanying photograph shows the plants, beautifully blanched, and ready for the cutting. The stalks are cooked in much the same manner as asparagus, and are voted a remarkable success by the sanitarium guests. They have a delicate, individual flavor, unlike any other vegetable, though the root when baked is not at all unlike the Italian chestnut in flavor.

THE AMADUMBE, THE DASHEEN OF SOUTH AFRICA.

On page 471, July 1, a missionary of South Africa offered to send me some samples. See the following.

Mr. Root:—Your letter of June 3 arrived at Mount Silinda about two weeks ago, during my absence while attending the Rhodesia Missionary Conference at Bulawayo. I reached home yesterday.

I have put up a sample package containing three each of the malata sweet potatoes (as we call them), and the amadumbe, addressed to you. I will have it registered, and hope it will reach you safely. I am not quite sure as to the limit of weight of sample packages, so, instead of sending a larger package to Florida, I may send two packages in about two months or a little less, which should bring them to you in Florida in November. W. L. THOMPSON.

Mount Silinda, Melssetter, S. Rhodesia, Aug. 2.

The samples mentioned above are at hand. The amadumbe is so much like our Trinidad dasheen that it seems to me there can not be very much difference in form, shape, and solidity. The buds just started are exactly like the dasheen. We sent them all to our Florida home to be planted, with the exception of one bulb. I am going to plant this here in Medina to see how the foliage compares with the Trinidad dasheen. Many thanks, friend Thompson. When they get our parcel post in such shape that we can swap "garden sass" with the friends all over the world, including the remote islands of the sea, we shall no doubt be able to reduce the "high cost of living;" and spreading the gospel will help it along better than any thing else in the whole wide world. "Seek ye first the kingdom of God, and his righteousness," etc.

THE DASHEEN—SOMETHING DIRECT FROM THE ISLAND OF TRINIDAD.

Regarding dasheens, I may state that I confirm all that is written in *GLEANINGS* of Aug. 1, p. 553. The people here use it the same way. If they are higher than a man's head, as on p. 18, you are doing pretty well. We scarcely see them so high here. The tubers here attain 10 to 15 lbs. I do not agree with p. 18 of July 1 that it tastes better than the sweet potato—at least not to me. At the prices you are getting the bulbs there, I think it would not pay

you to send them from here by parcel post (the only way), paying 12 cts. per lb. postage. Otherwise I should be only too glad to send them. Besides, in a short time you are going to have them in large quantities, as the bulbs multiply so much; in fact, you have to be careful in the cultivation, otherwise what you get is only bulbs and no tubers. Unless you extract the bulbs continually you get no substance—tubers.

C. M. CARMONA.

San Rafael, Trinidad, B. W. I.

DASHEEN A SUCCESS IN OHIO.

To-day, Sept. 20, we made our first test of one of the side tubers of one of our dasheen plants. To my great surprise the tuber was bigger than a large hen's-egg; but as it was growing rank and thrifty there was a great green stalk (bigger than a hoe-handle) with large leaves on top. We cut off the largest leaves, then cut off the green stalk above the tuber, and cooked the green and the smaller leaves in a sort of stew. As there was considerable liquid in it when done I suggested putting in a few crackers; and it was one of my "happy surprises" to find it was so much like mushrooms that, had my eyes been shut, I should have declared it was mushrooms. The green tuber itself took nearly an hour to bake so as to be well done; and although it was not equal to the matured tuber sent me by the Department of Agriculture, it was what I would call a very nice baked potato—that is, when you bake potatoes that are only half ripe. Mrs. Root said at once the baked tubers tasted like a new potato not fully matured. Now, the maturity will depend on how long frost holds off. Sometimes here in our locality we do not have a killing frost till November. This would give us five or six weeks yet for the dasheen to ripen. From the fact that every bit of the plant is edible (and delicious food besides) I think it safe to say it may be grown as far north as we are.

May the Lord be praised for giving us this new vegetable for human food. The tuber I dug was from one of the side shoots. The central plant produces a very much larger one. The first large leaves on many of the plants have now turned yellow and are dying down. I take it that at maturity the leaves all die, and the nutriment in these great luscious leaves goes down to mature the tubers. The central stalks for quite a little distance above the ground are now as large around as the top of a teacup; and if they should be used now like asparagus there would be a large amount of nutritious food in them.

By the way, letters are coming in every day asking for tubers to plant. I can not furnish them. I expect to give the readers of *GLEANINGS* a tuber or two apiece. That is all I can do. Crenshaw Brothers, of

Tampa, Florida, are preparing to send seed tubers by parcel post. If you want a peck or a bushel or more I think you had better write to the Brooksville Development Co., Brooksville, Fla. That is where I got my five bushels.

Just one more word, dear friends. In writing up these articles on high-pressure gardening and developing God's gifts it would be out of place for me to have any thing to *sell*. There would be a temptation to exaggerate, and I should not feel free to commend or criticize as I do now; therefore please do not ask me to sell duck eggs, Buttercup eggs, dasheen tubers, or any thing I have mentioned here.

THE GUADA BEAN, OR SOLOMON'S ISLANDS GOURD.

We are pleased to notice in the Florida *Times-Union* a picture of the guada bean that I have several times spoken of. Below is what is said of them:

Mr. Davis has proved that these strange vegetables will grow in Florida, and of them he says, facetiously, in his paper, *The Winter Garden Times*, "Beans is beans. We now have on two vines of the guada bean or Solomon's Islands gourd, seventeen pods which measure from a foot to 44½ inches in length, which certainly strengthens our claim that 'Beans is beans.'

"We overcame our scruples Sunday, and cut three small ones that had curled up, and which we thought would not make good seed, and cooked them.

They were excellent, and remind one of the string bean or asparagus. We cooked in salted water; and with some creamery butter at 45 cents a pound, and pepper, they were good eating. It took about fifteen minutes to cook them tender.

"We have demonstrated that these beans could be grown in Florida during the hot summer months, and now we wish to try them for September, October, and November. We have two vines just coming through the ground; and if they mature in two months they might be ready for shipment in November. We expect to ship on a flat car and cord them up like cord wood. Nothing smaller than five-foot beans will be shipped."

I think it is now pretty well demonstrated that this bean can be grown in Ohio as well as in Florida; for notwithstanding the exceedingly cold and backward spring, and the further fact that we did not get the bean in time to plant early, we have now several pods big enough to cook. Very likely they will not grow long enough to be "corded up" as mentioned above; but if they are as good as asparagus they are certainly a great acquisition.

Later.—To-day, Sept. 17, our good friend Henry Boreher, of Laredo, Tex., has sent us a guada bean, by express, 30 inches long. We had a part of it for breakfast, and I should say it tasted like something half way between a summer squash and asparagus; and it is, without question, a very pleasant and nutritious food. I imagine it wants a good rich soil; but it promises to be quite an addition to our list of garden vegetables.

Temperance

Perhaps I should explain, before giving the following, that Akron, Ohio, is a big city with between 200 and 300 saloons. With this in mind, read the following from the *Ohio Messenger*:

DOUBLE STANDARD AT AKRON, OHIO.

Up at Akron, Ohio, the addle-pated men have licensed a lot of saloons to spread disease and degradation among the people.

The taxpayers make it a condition of conducting the infamous business that the saloonkeepers deliver over a part of the profits of the traffic.

In the nets thus spread, a lot of young people have been caught, and sent reeling toward the Pit. Many of these are young girls, lured into these traps designed by fool men for that purpose, and there their lives have been wrecked.

It appears that since January 1 twenty-four men have pleaded guilty to or have been convicted of contributing to the delinquency of young girls. The saloon was the chief instrument through which these vipers operated.

Out of the twenty-four, only seven are undergoing punishment. The others are under suspended sentences in whole or in part, or are running around on bond.

Swift punishment was the invariable fate of the girls.

The women of Akron are up in arms at this, and demand the punishment of the men along with the women.

But justice in Akron wears pants; and, being a

part of the electorate, it shares in the miserable guilt. It is part of the body politic that votes to license the business, and then goes around snivelling about the natural, unerring results.

If the women could make any worse mess of things than the men have done, if given the ballot, then popular government is, indeed, in a sorry plight.

"SOMETHING'S THE MATTER WITH KANSAS."

We make the following extract from an article in the *American Advance* for Sept. 6, copied from the Philadelphia *North American*.

A few days ago, when the whole country was worrying about the unprecedented heat and drouth in the West, the governor of Kansas issued a public statement saying he hoped no one would waste pity on the people of his State.

"With more than \$200,000,000 on deposit in our State and National banks, we could weather a worse storm than this without hardship," he said.

And when you stop to think that this money, divided equally among the men, women, children, and babies of Kansas, would give each of them \$118 in cash, not to mention the tidy sum of \$1684 each is credited with as his or her share of the State's assessed wealth, you can see the force of the argument.

As a matter of fact, Kansas, which last year produced \$325,000,000 worth of farm products, can better afford such a roasting and drying up than any other State in the Union, for her per capita wealth is larger than that of any other State.

She can better afford this or any brand of calamity, for her people are not constantly paying out huge sums for the care and keep of criminals, paupers, insane, and feeble-minded.

In eighty-seven of her 105 counties there are no insane. In fifty-four of this number are no feeble-minded. Ninety-six counties have no inebriates, and in the other nine they're as scarce as hens' teeth. Thirty-eight county poorhouses are as empty as a last year's locust shell, and most of these have been so for the best part of a decade.

At one time not long ago the jails in fifty-three counties were empty, and sixty-five counties were on the roll as having no prisoners serving sentence in the penitentiary. Some counties have not called a jury to try a criminal case in ten years, and the attorney-general says, "A grand jury is so uncommon that half our people wouldn't know what it is and how to use it."

Something is the matter with her. That something, we believe, can be boiled down into these first fourteen words constituting an amendment made to her constitution in 1881:

"The manufacture and sale of intoxicating liquor shall be for ever prohibited in this State."

Something similar has appeared in GLEANINGS already, but without the further details. When you hear people talking about our government losing "revenue" by banishing the saloon, point them to the above facts in regard to Kansas.

SOME GOOD NEWS FROM AN OLD FRIEND AWAY OFF IN CALIFORNIA.

Mr. Root:—We just had a conversation at our breakfast table; and wondering if it would not please you we mail you a clipping from our daily paper, the *San Bernardino Sun*, in regard to the great victory of prohibition, as you will see it was sweeping in character. The ladies began marching to the polls early, and kept it up until late; hence the large majority. The Salvation Army workers are doing a wonderful lot of good in their open way of worship and sign-posting. At public watering-troughs along the highways, and on smooth-faced stones some scripture texts are inscribed, and under advertisements of social gatherings, races, etc.

Rialto, Cal., Sept. 10. E. J. ATCHLEY.

Below is the clipping referred to:

RIALTO DRY IN REALITY; BOOZE-WAGONS CAN NO MORE DELIVER GOODS TO THE CITRUS CENTER.

By a decisive vote last Saturday Rialto not only put a ban on saloons; but the delivery wagons which heretofore have been delivering wet goods from adjoining towns and cities will be a thing of the past.

It was a great victory for the "drys," the vote being 185 for the banishment of the wet goods to 42 which favored.

The real intent of the election was for the purpose of putting a stop to the delivery of intoxicants from cities where liquor licenses are in vogue.

The result of the election also prohibits liquor from being given away in Rialto. Sentiment against the legalizing or assisting in the use of liquor in any way was overwhelming in the pretty little city of Rialto, and intense interest was taken in the election, by both sides.

Please notice the overwhelming victory in the above was brought about by the women, the Salvation Army, and everybody else; and the suggestion in regard to putting up temperance mottoes and scripture texts, etc., is well worthy of being followed. We might

indeed call it "high-pressure" temperance work. Who comes next?

THE ANTI-CIGARETTE LAW OF WEST VIRGINIA.

Dear Mr. Root:—I am sending a copy of the cigarette law of our State, which I know will interest you. I saw where you had been informed of our State going dry. I hope you will live to see this same law go into effect in every State, and I believe you will.

MRS. CONRAD G. ANDERSON.

Yellow Springs, W. Va., Aug. 2.

Amen to the wish that a similar or more sweeping law may be enacted for every State. Below is the clipping referred to:

Prosecuting Attorney Robert White has requested the *Review* to publish the cigarette law, which goes into effect May 24, which will be done later.

In this statute it is unlawful to sell, offer, or expose for sale, or give away or furnish or cause to be given away or furnished to any person under the age of twenty-one any cigarette or cigarette papers; and it is unlawful to sell or give to any person under the age of sixteen years any cigar, pipe, or tobacco in any form. It is also unlawful for any person under the age of twenty-one years to smoke or have in his possession any cigarette or cigarette papers. For each offense there is a fine of \$5.00.

The Prosecuting Attorney desires attention called especially to the fact that every constable, policeman, town sergeant, sheriff, or his deputy, when he finds any person violating the provisions of this act shall make inquiries and arrest such person at once. And if any such officer fails to perform this duty required of him he shall be fined \$5.00. A fine of \$5.00 is the penalty for smoking or using cigarettes in any school building or on lands used for school purposes.

IMPROVED PARCEL POST; SOME SUGGESTIONS BY OUR GOOD FRIEND A. T. COOK.

Much praise is due Postmaster-General Burleson for his improving our parcel post. More may be mentioned.

All third-class matter should be included, and the rate for all matter under one pound for any distance be 1 cent per 2 ounces or pound rate. This would entirely eliminate the third class, and wonderfully simplify the business. Surely third-class matter—seeds, plants, books, etc., deserve as low a rate as any. (Before the parcel post they were but half the merchandise rate.) As parcel post now stands, 1 cent per ounce up to 4 ounces is too high, and no better than old rates; and over 4 ounces, much higher than before, in many cases even more than letter postage. This should be changed quickly.

I think too the "zones" could be simplified, and three zones be a plenty; viz.: First zone, the county and all adjacent counties; second zone, the States and all adjacent States; third zone, everything beyond. Of course local rural routes should have their special rates.

A. T. COOK.

Hyde Park, N. Y., Aug. 6.

WHAT ONE OF OUR ADVERTISERS THINKS OF THE VALUE OF OUR ADVERTISING COLUMNS.

The A. I. Root Co.:—Inclosed find check for balance due on my advertisement. You may discontinue the same. I will be ready for another in the spring. I am glad to say that I did a nice business this season, and I believe my customers are all satisfied, as I tried to treat them right. I have lost but three or four queens on the road. I certainly feel that the advertisement did me lots of good, as nearly all said they saw it in GLEANINGS. I have not had one complaint all summer.

S. CLICK.

Mt. Jackson, Va., Sept. 5.

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Editorial

THE EDITOR OF THE AMERICAN BEE JOURNAL
ABROAD.

THE editor of the *American Bee Journal*, who has been traveling in Europe, writes entertainingly in his paper about his trip. Mr. Dadant has not only been going through his fatherland, France, but through Italy and Switzerland.

DEATH OF MR. JACOB HUFFMAN.

MR. JACOB HUFFMAN, of Monroe, Wis., died recently of a paralytic stroke. He was for a number of years president of the Wisconsin State Beekeepers' Association, and at one time was vice-president of the National Beekeepers' Association. He seldom wrote for the bee journals, but was prominent at conventions. He was one of the most extensive as well as one of the best beekeepers of his State. He will be missed by his fellow craftsmen.

NOTICES OF NEW BULLETINS ON BEES.

It is always our intention to make editorial mention of any new book or bulletin on bees. If we inadvertently omit such mention, the author or parties concerned will confer a favor by calling our attention to it, at the same time seeing to it that another bulletin is sent. It is not always possible for us to keep track of works published in foreign countries, and especially those printed in other languages. The conditions of management and climate necessarily render a work in another country of little value elsewhere. The A B C and X Y Z of Bee Culture, however, aims to be cosmopolitan as far as the United States and Canada are concerned. In this country we have nearly all conditions of climate that are found in other parts of the world; and our work is, therefore, adapted to all climates where bees are kept.

WHY, TO BE SURE.

THE new State Chemist in Idaho is a man who takes a pretty practical view of things if we may judge by his statement in regard to the belief that so much honey is adulterated. We quote herewith the paragraph in

question from the *Evening Capital News*, of Boise, Idaho:

"I wonder why it is that people believe honey has been adulterated, even though they have seen the farmer gather it when they buy," asks the State Chemist. "They don't act the same way when they buy other things on the market. If they should get a can of maple syrup that was largely adulterated, the first question they would ask is, 'Well, it won't hurt me will it?'"

Too many people are all too willing to believe that foods of all kinds are adulterated. They like to say that maple syrup is made out of glucose and corncobs, etc. Personally we like to think that what we are eating is clean, and that it came from clean surroundings. That is why we like to eat honey.

NEW YORK STATE BULLETIN NO. 49, ON THE
SUBJECT OF THE HONEYBEE, BY W. D.
WRIGHT, FREE TO ALL.

IN our issue for September 15 we gave an extended review of a bulletin issued by the Department of Agriculture at Albany, N. Y. It will be remembered that we spoke of it as one of the best specimens of the printer's art that has ever been published, and that it was written by one of the best beekeepers in the Empire State. We suggested that all outside of New York might have to pay 10 or 25 cents for it. Commissioner Huson says they are free to all. Here is what he says:

Mr. Root:—We wish to thank you for the very pleasant notice that you gave in GLEANINGS for September 15 relative to our recent bulletin No. 49 on the subject of the honeybee. We notice that you suggested that these bulletins could be sent outside of the State of New York on payment of a fee of ten or twenty-five cents. It is my desire to supply these bulletins free of cost to any persons who are interested in the subject as long as we have an available supply for the purpose.

CALVIN J. HUSON, Commissioner.

Albany, N. Y., Oct. 1.

It is a splendid book, and is well worth reading, and keeping in any library, especially when it costs no more than a postal card to get it. Now is your chance, brother beekeepers; but do it "fust," as David Harum says, as the edition may be exhausted.

A REVISION OF "WINTERING BEES."

WE have just received from the GLEANINGS press a newly revised edition of a book entitled "Wintering Bees," by E. R. Root. It contains 62 pages, paper covered. It is fully illustrated, and well printed. This new revised edition contains particulars regarding the latest methods of wintering, such as the subject of candy for feeding bees. It also places strong emphasis on the importance of windbreaks for outside colonies. In a general way it covers the whole subject of indoor and outdoor wintering; ventilation and temperature of bee-cellars; general construction of bee-cellars; then winds up with a few concluding facts well to bear in mind. These facts or statements were indorsed by no less authorities than Dr. C. C. Miller and the late W. Z. Hutchinson. Price 10 cents, postpaid.

CORRECTION REGARDING MILLER METHOD OF INTRODUCING.

THE following telegram from Mr. Arthur C. Miller, just as we go to press, will explain:

E. R. Root:—You have misquoted me, and thereby done me injustice—editorial, page 667. I do not confine queens twelve hours. Alley did not introduce to full colonies with tobacco smoke—Handy book, pages 25 and 26, edition 1883.

ARTHUR C. MILLER.

Providence, R. I., Oct. 10.

We do not know how this error crept in; but the method that we find so efficacious is precisely the one that Mr. Miller recommended in his article on page 370 in our issue for June 1. Furthermore, it is true that Mr. Alley did not introduce to full colonies. The only point of similarity between the Alley method and the Miller is that Alley used tobacco smoke and introduced only to nuclei. He evidently did not contemplate the plan of introducing to full colonies, under all conditions, laying and virgin queens, the latter of any age. We may say further that we are still using the plan; and if it continues to work as satisfactorily as it has done, we shall recommend it to all of our customers in preference to the caging method.

ARE SPECIAL NUMBERS ON ONE TOPIC CONFUSING?

OUR first idea in providing special numbers such as we have had during the last few years was to draw out the best available thought on the special subject in question, so that in a "multitude of counselors" there might be wisdom. In one, or two of these numbers, experts have disagreed somewhat, so that we were fearful the effect might be somewhat confusing. This fear is expressed by one of our subscribers, Rev.

G. H. Chatterton, who writes as follows: "For my part I do not care so much to have one whole number on one subject. It seems to confuse one when there are so many different views expressed."

We are willing to abide by the wishes of our readers in this respect. We shall soon have to be making plans for the special numbers next year if we have them, and at this time, therefore, we should be very glad if those of our readers who are interested in the matter would express their opinion briefly on a postcard, and mail it to us. We should prefer to have nothing else on the card, and to have the opinion on a postcard only. We shall govern our actions according to the opinions expressed by the majority of those who vote.

GETTING COMBS FASTENED IN SECTIONS AFTER THEY HAVE BEEN FILLED WITH HONEY AND CAPPED OVER.

DR. A. F. BONNEY, after seeing the article by Dr. Humpert in our last issue, page 674, on cutting up filled extracting-combs and fitting them into sections for the bees to fasten, wrote us that he had been experimenting along the same general lines without the knowledge of what our correspondent had been doing, and that, before he had seen the Humpert article, he had sent a communication to the *American Bee Journal* that is yet to be published. He hoped, therefore, no one would think he had been copying.

In the mean time, A. I. Root says that away back in the early '70's the first section honey he ever put up was made in this way—that is to say, he cut up the best combs from his extracting-frames, and fitted them into squares of wood for the bees to fasten afterward. These he called "sections" or "sectional honey-boxes." If we are correct, he originated these names. Well, he made the discovery that the bees would not make the attachments satisfactorily in most cases—that it was very much better to put the sections in the hive, let the bees build, fill, and cap the combs in the first place, than it was to work on the other plan.

In relation to this matter, we have received a letter from Mr. M. H. Hunt, one of the veteran beekeepers of Michigan, and who did a good deal of pioneer work among his bees when A. I. Root was doing his early experimenting. Mr. Hunt writes:

Dear Mr. Root:—I have just finished reading Dr. G. A. Humpert's article in Oct. 1st GLEANINGS. Years ago, when I used to go to fairs, I cut honey to fit solidly into glass and wooden sections, and had the bees fasten the same. This summer I had only two days' notice of a banquet, and I cut and

fitted into sections $2\frac{1}{2} \times 2$ enough for each one in attendance. I have always found that a large percentage of the sections so fixed will fail to be anywhere near perfect. The larger the section the greater the success.

Redford, Mich., Oct. 8.

M. H. HUNT.

As stated in our issue for Oct. 1, the plan of cutting up combs into small squares out of extracting-frames is feasible; but such combs should be allowed to drain, then wrapped in paraffine paper, and put into cartons. A. I. Root is very positive that it is not practicable to have these cut combs, after they have been capped over, fitted into and fastened into sections by the bees as an after-operation. While they *may* make a few individual specimens that will look very well, in a large way he says the plan is not a success.

OUR COVER DESIGN; CELL-BUILDING COLONIES.

OUR front cover design for Sept. 15th issue shows a view of our queen-mating baby nuclei among the basswoods where we raised and mated over 3000 queens during the past season. On the cover of this issue we show the cell-building colonies for these same babies a little further along in the same grove. Not all the hives are cell-builders, but all the two-story are devoted (or were at the time the picture was taken) to that purpose, and all of them were operated for honey. Last year was an exceptional one for nectar secretion. It was not necessary, therefore, to feed these cell-builders—in fact, our Mr. Pritchard was greatly embarrassed by such a flood of honey coming in that his queens were honey-bound, and his cell-builders swarmed and swarmed and swarmed, keeping him busy a great deal of the time in shinning up trees, for these powerful colonies devoted to building cells would of course be in fine condition to swarm. The usual procedure of cutting out cells would not do, for that would defeat the very purpose of these colonies, so Mr. Pritchard had to grin and bear it. Once or twice he was compelled to witness one or two of his crack colonies sail over the tops of the basswoods and fly on and on and on, crosslots, for parts unknown.

This is a very good location among the basswoods; and, as will be seen, it is well sheltered in all directions from the prevailing winds. The only exposure is toward the south, and we seldom fear a south wind, even in mid-winter. Next to this basswood grove on the north is a dense growth of woods. On the west is an extension of the grove for about one thousand feet further on. During the windiest of days there will be no piercing blast to interfere with wintering or springing.

On the other side of the building is a

driven well which is out of view. It supplies us with plenty of clean water for washing, and for making up syrup whenever there is no honey coming in; for it should be understood that cell-builders should be kept in a highly prosperous condition by slow feeding if there is no honey coming in from the fields. We use a Boardman entrance feeder with glass Mason jars, some of which will be seen in the foreground. The syrup is received through three or four holes in the cap, and the supply is so restricted that a filled can of syrup will last even a cell-builder 48 or more hours. As long as there is a constant supply of food coming in, the work on the cells will continue uninterruptedly. But if one of these feeders, by chance or otherwise, should be allowed to remain empty for a few hours during a dearth of honey, there will be danger that every cell will be destroyed.

For further particulars regarding this basswood yard and its early history, see page 631, Sept. 15th issue.

NATURAL VS. ARTIFICIAL RIPENING OF HONEY.

WHILE we doubt whether it will pay to utilize any more space in GLEANINGS for a discussion of artificial ripening of honey, since the great bulk of the evidence is against the practice, we should like to mention, nevertheless, that in the May 15th issue of the *Australian Beekeeper* a discussion on the subject appears, which is really a symposium. As usual there is a difference in opinion, although there is not such a feeling against the practice in Australia, apparently, as in this country for instance. We desire to point out in passing that at least one of the writers is laboring under a misapprehension when he believes that the bees do nothing to the nectar of the flowers except to evaporate the excess of moisture—in other words, that the ripening process is merely driving off the excess of water. All chemists know that there is a decided chemical difference between the sugar found in the nectar of the flowers and that in ripened honey. By the time the evaporation is accomplished by the bees, the “inversion,” as it is technically called, has been brought about.

While not recommending the practice we believe that there are localities where it is safe for a judicious beekeeper to extract from combs not yet capped over. We believe, also, that in many other localities there are certain combinations of conditions of weather, atmosphere, etc., where the honey is entirely ripe before it is capped over. As an illustration, because of the necessity of providing room for colonies in one of our

yards during the height of a period of excessive swarming, we extracted something over a thousand pounds from combs, many of which were not yet even partly sealed. To our surprise the honey was as thick as any we ever extracted, and the flavor was also equal to the very best. Under other conditions (this was toward the close of quite a protracted drouth) we are sure that the honey would have been thin and entirely unfit for table use.

We wish to go on record, as we have said before, that we do not believe in extracting *green* honey, and then making an effort to ripen it artificially. With a suitable equipment we believe an expert may succeed; but we can not recommend the practice for the average beekeeper under the average conditions.

WHY THERE WAS NO APPROPRIATION FOR THE TEXAS FOUL-BROOD LAW.

In our issue for Oct. 1 we referred to the fact that the splendid foul-brood law that was enacted by the last legislature of Texas did not carry with it an appropriation to put it into effect. In writing to State Entomologist Wilmon Newell concerning it we stated that the situation was somewhat the same in his State as it was formerly in Pennsylvania; and we suggested that perhaps under the circumstances Mr. Newell could adopt the same scheme that was employed two years ago in Pennsylvania—namely, secure volunteer service from beekeepers interested in the suppression of foul brood in their respective localities. Much good was done in Pennsylvania because Prof. H. A. Surface, State Entomologist, clothed these volunteer inspectors with police authority. The result was, a large amount of good was done. In referring to this, Mr. Newell writes, under date of Sept. 23; and as this letter plainly states *why* this appropriation was not obtained, we have secured his permission to publish it, and here it is:

Dear Mr. Root:—Replying to yours of the 16th, our situation is quite different from what Prof. Surface had to contend with in Pennsylvania. He did have an appropriation of \$500 with which to meet "overhead expenses," I understand, whereas we have *nothing*. A system of volunteer inspectors would involve a pretty heavy correspondence for this office, and this we can hardly undertake with no money with which to defray postage, stationery, stenographic expenses, etc. What is more, now that no appropriation has been made for foul-brood eradication, I am not officially supposed to have that work on my hands, and my time is fully taken up with other lines of work. What I have done, however, is to notify the county associations that in all cases where they will defray the expenses of the inspector (the amount of the inspector's compensation to be arranged between the association and the inspector) we will furnish the inspector with an official appointment, and the necessary authority for the work.

As a matter of fact, our Texas inspectors have in the past been little more than volunteers. They have been paid at the rate of \$3.00 per day for time actually employed, and out of this have paid their own local traveling expenses and furnished their own conveyances. They were really giving their time to the State, and breaking even on the cash outlay involved.

I may add that the beekeepers of the State evidently did not strain themselves any to see that the appropriation was renewed. So far as I can learn, only one beekeeper took the trouble to visit Austin for this purpose while the last legislature was in session. If the men whose property is at stake have no more interest in the eradication of bee diseases than this, why should I work nights and holidays, and go to Austin and lobby for foul-brood appropriations at my own expense? I have never received a cent of salary for the time and work devoted to foul-brood eradication. The only satisfaction I have is that of *knowing* that nearly a thousand cases of disease have been cleaned up, and that half a million dollars invested in beekeeping has received protection from disease during the past four years.

Now that things have turned out as they have, I rather regret the last sentence of the article in GLEANINGS, which states that copies of the new foul-brood law were ready for distribution about Sept. 15. Now that there is no appropriation we can not, of course, print any copies of the foul-brood law, and the immense amount of work in other lines absolutely precludes our taking the time to either type-write or multigraph a sufficient supply to meet all requests.

WILMON NEWELL.

College Station, Tex., Sept. 23.

Not only the beekeepers of Texas, but all other beekeepers in the Union, should read this letter. It has happened more than once that apathy on the part of beekeepers has been responsible for the defeat of suitable foul-brood legislation. Law-makers will very often disregard the request of a single individual, even though he be a State official; but if this same official is backed up by a State organization representing a large membership, or if, however, the beekeepers present themselves in a body before the legislative committee having the bill in charge, as a general thing something will be done. We can not blame the legislators for failing to enact laws when the parties most interested in a financial way or otherwise do not show any interest in the measure. If the beekeepers of Texas had sent in a thousand or more postals to the members of their general assembly, the situation would not be as it is now.

Referring to the \$500 appropriation available to Professor Surface for foul-brood inspection work, we may state that two years ago he had no appropriation. Having the law, he was able to enlist the services of quite a number of volunteer inspectors whom he clothed with police authority. During the past year he was able to get \$1000 for two years instead of \$3500 for one year. He made the first \$500 go as far as he could. He may have to depend largely on the volunteer inspection work as before.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

R. F. HOLTERMANN, you wonder, p. 651, why the capacity of smokers for fuel is not greater, so as to save more time. The answer to that is easy, friend H. It's because we're not all great big fellows like you, with strength to burn. I'd rather waste time to load up two or three more times in a day than to waste a good deal more in the way of strength by lugging around too heavy a smoker. The chief objection to the average smoker "in this locality" is that it wastes strength by having the spring unnecessarily stiff. We'll let you get big smokers to save your time, if you'll let us save our strength.

THAT talk, p. 660, about selecting the right seed to improve the corn crop, thus adding thousands to the general wealth, is capital. And it forms a fine text for the improvement of bees. If every beekeeper in the land would take as much pains in selecting the right stock to breed his bees from as A. I. Root advises about corn, it might easily increase the total of honey 25 per cent, and that without increasing the labor of beekeepers. I think it would be a gain to beekeepers, and I know it would be a gain to the consuming public. And there's another thing I know, and it's this: That so long as the great mass of beekeepers are so listless about it, the few who do make a business of improving stock will gain by it—*big*.

A ROADSIDE WEED OF WORTH is the caption of an item in *The Country Gentleman*, in which the editor says: "Farmers are learning that fields too dry, too stony, too hard to grow any thing else, will become green and valuable with sweet clover; and they are learning that stock relish it as much as alfalfa. [Yes, and the farmers of the semi-arid West, in parts of Kansas and Nebraska, are discovering that their uplands that are too hard and too dry to grow alfalfa will grow sweet clover luxuriantly. Pigs and other kinds of stock are now being well fed on these same kinds of waste lands. The time is coming when the Eastern farmer as well as the Western rancher will grow sweet clover on certain of his lands as he now does corn, grass, and other clovers on good land.—ED.]

RAISING hives on 7/8-inch blocks is a help toward the prevention of swarming, but in this locality it is by no means so effective as described on page 593. I practiced it on a large scale years ago, but had to cut cells all the same, and at that had a good deal more than three per cent of swarms. [Locality *may* make a difference. Mr. Vernon

Burt is a very successful beekeeper, and conservative in his statements. We are sure the plan works with him. Possibly the strain of bees may have something to do with it. While *you* have been breeding toward non-swarmer, Mr. Burt has given his attention largely to honey-producers. We shall be glad to get reports from others in regard to the success or failure of this scheme of putting hives up on four blocks. Almost any plan will work successfully during a poor season; but when honey comes in with a rush, preceded by a gentle flow, just enough to start brood-rearing at a good pace, it is not always easy to control swarming by orthodox methods.—ED.]

"THERE is absolutely no harm in saying in one's advertisement, 'I have the finest queens ever produced.' Such a statement is a general one, and can be accepted as such when summing up," p. 607. But if the advertisement reads, "My bees are all free from foul brood," then the advertising manager must demand proof. Wouldn't that make it a little hard for both the manager and the advertiser? But saying nothing about that, the whole tenor of the thing sounds a good deal like saying, "There is absolutely no harm in lying in general, but you must be careful about lying in particular." If two different advertisers say, "I have the finest queens ever produced," one or the other must be lying. Indeed, I can not conceive how any one can truthfully say, "I have the finest queens ever produced" unless he has actual knowledge of all queens ever produced, and who has that knowledge? The fact is, and it is a lamentable fact, that one does not expect the exact truth in advertisements. A lie is a lie, whether general or particular, in an advertisement as well as elsewhere. It is gratifying to know that at a late meeting of the national association of advertising men, "Truth" was adopted as their motto. Let's have the truth, both in particular and in general. [We sometimes say a horse goes by "like lightning;" and the same kind of hyperbole seems to have crept into much of present-day advertising; but the time has come now when an exact and honest statement without exaggeration will bring in larger returns of money than boastful advertising that tries to make the buying public believe what it knows is not true.—ED.]

FRANK A. GRAY asks how to pack a section or more of honey for parcel post. Doubtful if comb honey can yet be sent by

parcel post. If a single section is sent, it might be in a light box with corrugated paper around it. For a larger package use a safety shipping case, and I don't know whether it would be safer to have extra corrugated paper around the case, or to send without, so the honey can be seen through the glass. [As we have said several times before in these columns, we repeat again, we hope that, for the present at least, beekeepers will not commit the folly of attempting to send comb or extracted honey by parcel post. The disastrous experiences of those who have tried it will, we fear, so prejudice the postal authorities that they will never allow honey to be shipped in that way. We believe it can be done some time in the future; but we ought not to make the fearful mistake of prejudicing our chances for all time by making the attempt now. Nothing can disgust the general public more, and the postal authorities as well, than to have their parcels daubed with honey. For pity's sake, brother beekeepers, do not try it. Parcel post is on trial to a certain extent. While we believe it has come to stay, we should give the system a fair test, and that means, not to attempt the impossible until suitable regulations have been made whereby honey and other fragile articles can be given a classification and handling by themselves. Just now, for example, the women of Cleveland are sending paving bricks by parcel post to the man who has charge of the streets of Cleveland to stir him up to the need of repairs. If one of the "pavers" is put in a sack with a section of honey there is going to be a mess as sure as fate. See editorial column.—ED.]

THAT item from the *Farm Journal*, p. 629, is fine, except where it makes too strong a claim for honey. Aside from any moral question, there's no gain in the long run by going beyond the strict truth. I wonder what is the average dryness of honey. Is it, as claimed, *usually* "less than 20 per cent of water"? I don't know about that, but I do know that another claim is away off which says, "Honey will keep indefinitely. . . . Actually, honey improves with age." I kept a sample of beautiful white extracted honey until it was as black as molasses, and utterly spoiled with age. Would any one claim he ought to get a better price for his honey because it is a year old? There are enough good things about honey that we ought to teach the public. Please don't let's get in the way of lying about it. [By consulting Bulletin No. 110, from the Bureau of Chemistry, United States Department of Agriculture, by

Brown, you will find the average analysis of honey as follows:

Moisture	17.70	per cent
Levulose	40.50	per cent
Dextrose	34.02	per cent
Sucrose	1.90	per cent
Ash	0.18	per cent
Dextrin	1.51	per cent
Undetermined	4.19	per cent
	100.00	per cent

It will be seen from this statement that less than 20 per cent of water is correct, for Brown is known to be one of the best chemists in the United States.

About honey keeping "indefinitely" and improving with age, suppose you look at the September issue of the *National Geographical Magazine*, p. 999. On that page you will see where some findings from one of the pyramids of Egypt are illustrated and described. Among other things we read:

FRESH HONEY 3300 YEARS OLD.

Most startling of all was the discovery of a jar of honey, still liquid, and still preserving its characteristic scent after 3300 years! "One looked," said Mr. Weigall, "from one article to another with the feeling that the entire human conception of time is wrong. These were the things of yesterday, of a year or two ago."

If we are correct, there is another account of honey being found in the pyramids, and it was in excellent condition. We positively know this: We have tasted extracted honey that was twelve years old. Some very interesting data on this subject will be found on pages 712 and 713 in this issue by R. C. Aikin.

Referring to the sample that you kept until it was "as black as molasses," the question all hinges on *how* you "kept" it. Honey should be kept in a dry *dark* place. Conditions inside of the pyramid, as we understand it, were ideal for the preservation of human bodies, of monkeys, of dogs, and of cats, which were also mummified. If that were so, why would not honey keep under conditions which were perfect—possibly more so than we can supply in this country?

Is it not true that good extracted honey will improve with age up to a certain point when conditions are right? Honey that has not been thoroughly ripened will improve very much if kept in open vats in a dry atmosphere. Even comb honey, up to six months or a year old, will have a richer and mellower flavor providing it does not granulate. Perhaps it is too startling for the average mind to conceive of a honey 3300 years old, "still liquid," and still preserving its "characteristic scent." But is there another food in the world, of a semi-liquid character, that will keep as long?—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

One of the neatest yards of bees I have seen this season was one where a few sheep were kept, and no lawn could be more free from grass and weeds. I don't believe the use of sheep for this purpose has been half appreciated.

* * *

Mr. Chadwick's estimate of the income that could be expected from a yard of bees as an investment in the hands of a fairly good beekeeper, page 441, would be a fair estimate in this part of the world, but the difficulty would be to find the reliable beekeeper.

* * *

I know of no business that is carried on with so little actual knowledge of it as beekeeping by the average beekeeper. He knows that bees need a hive; that they swarm, make honey, and are made angry by sweaty horses. Well, some of them are learning these days that bees have diseases, like other animal life, to their sorrow.

* * *

Friend Byer, on page 438, discusses the quality of Southern honey. Now, I know it is a sure thing that they produce some fine honey in the South, for I have eaten it right out of the hive in Florida, and found some the equal of our best Northern honey. And I have eaten it on the table of my friend J. J. Wilder, in Georgia, and I know it was good; but it is not all so.

* * *

If you buy comb-frames ready made, and holes in end-bars already punched, you are ready for wiring; but if you make them yourself, the punching of holes in the end pieces is quite an item. But some one has told me this season that using a thin saw and cutting a slot down half way through the end-bars, where the wires are wanted, is quicker than punching holes; and then the wiring is simplicity itself, for you only have to place the wire in the slots without the bother of running it through holes at each end. This cutting or sawing into the end-bars might seem to weaken them; but in time the bees will soon fill the slots with propolis, and make them all right.

* * *

A recent number of the *Technical World* tells of an invention to attach to a hive, a sort of speedometer that will register the number of bees leaving or entering a hive during the day. This would, if it proves practical, solve several interesting problems that we have been heretofore unable

to unders'and perfectly, as, How many bees does it take when gathering honey freely to gather a pound? How many bees go out each day, and how many return? How many more are lost on windy days than on those days that are pleasant? How many more bees does it take to gather a pound of honey during seasons of comparative scarcity than when the flowers are rich in nectar?

* * *

On page 437 Dr. Miller refers to compensation to those whose foul-broody colonies are destroyed. A bee inspector has often to meet this inquiry: "Does the State pay for the loss?" The State certainly ought *not* to be held responsible for the loss caused by the bees being diseased; and if the State sends a man, paying for his time and expenses, to show to the owner of a lot of bees their condition, and instructs him how to get rid of disease, it would seem that the responsibility of the State would cease. If the owner of a lot of diseased bees refuses to clean them up after he is told how, but leaves them to spread contagion all around him, he is entitled to little sympathy, whether the inspector destroys them or they are left to die without "medical assistance."

* * *

My dear Mr. Riebel, my sympathies are with you as you relate on pages 445, 446, the condition you find honey in stores. Oh, my! but doesn't one want to shake up both the slovenly beekeeper and ignorant grocer, and give them both a piece of his mind? As I go around among beekeepers my astonishment at their ignorance and folly never ceases. I find hives with supers resting directly on the frames, and glued down solidly with propolis, or perhaps an inch space between them, or perhaps a super without sections, or bottom with combs built from the top of the super to the top of the hive, or combs running at every angle to the top-bar of frames, or, perchance, a whole yard without a super on, or scarcely a chance to put one on, or supers without separators, and the combs built to suit the whims of the bees. Oh, dear! How can such be made to see their folly, and make them realize that they are losing dollars to save cents? They won't take a journal—no, no; they can not afford it. *Gleanings* for July 1 is worth all the journal costs for ten years just for the information it gives along the line of marketing honey; but, alas! they can not see it.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

A correspondent speaks of a bee-tree that contained a million bees and a barrel of honey. I guess a million bees could gather a barrel of honey all right. Some bees, though.

* * *

The Miller plan of introducing queens seems to be standing the test wherever it is tried, but I will stake my reputation that there are certain conditions under which this plan will also fail. In a recent issue of the *Western Honey Bee*, Mr. J. D. Bixby recommends the use of tobacco smoke when introducing direct.

* * *

I read a report in our local paper that the office of bee inspector is to be discontinued for the present. I am inclined to believe that it is only a report, and is not being seriously considered. The office of bee inspector was created by a State law, and it is difficult for me to understand how a county board of supervisors could suspend its action. We have been getting much needed work from our inspector, M. J. Meeker. I say needed work, for it has been many years since we have had a man in the office who has taken hold with energy. Mr. Meeker has done much effective work in the few months he has been in office.

* * *

In regard to the cutting of alfalfa for hay, I think the tendency of the farmers in this part of the State is to let it mature a little more before cutting. This is especially the case where it is to be used for horse feed. One of my neighbors ordered a carload from Imperial Valley, with the stipulation that it was not to be cut until well matured. Others are taking the same precaution. Alfalfa, when cut before blooming, is the source of much trouble among the dairymen. It is often dangerous to feed when cut before blooming, on account of being poorly cured. It then causes bloat to an alarming extent among cows. I lost one cow from that cause, and saved another only by the prompt arrival of a veterinary. If allowed to get thoroughly dried it crumbles and powders when it has been cut too early until there is great waste. If baled too green and damp, as most of it is, the center of the bales is moldy.

* * *

P. 601, Sept. 1, Mr. Byer says, "I heard a farmer once say that farming is a gamble on the weather." This reminds me of hearing a merchant tell several farmers who

were sitting around his stove that, if farming was not the best business on earth, they would all have been broken up long ago. I have thought of his expression many times, and am convinced he was right about the matter. If the average farmer in the middle West would spend as much for fertilizer, and practice the intense farming that is practiced on California orange-groves, he would get rich faster than many of those who have sold good farms in the East and bought orange-groves in California. But with beekeeping it is somewhat different, in that bees require much more attention in the East than here; and if the same attention were given the bees in this State as they receive in the East, the western beekeeper would fare more sumptuously. A neighbor said to me a few days ago that it is the Eastern beekeeper who keeps bees, but that it is the climate that keeps most of them in California. We have many excellent beekeepers in this State, but I think most of us will admit that the business is not worked on an intense basis here. I am sure that I do not follow mine as closely as I did while in the East.

* * *

I read in the last issue of *GLEANINGS* an account of the Hamilton County (Ohio) convention. Nothing strange about that to many; but to me it was of peculiar interest, it being my native county. My mother and father were born and raised in that county. Many of their reminiscences as told to their children are fresh in my memory. They are now nearing their fourscore years, having celebrated their golden-wedding anniversary several years ago. There was a custom in the early days of furnishing the harvest hands liquor in the field at harvest time. Mother and father were bitterly opposed to the practice, and made up their minds to get the grain cut without the use of liquor in the field. Father doubted if it could be done; but mother's strong desires in the matter were followed. There was some difficulty in getting it accomplished, but it was successfully done, to the astonishment of many of their neighbors, and the precedent was so strongly followed in the future that it was only a short time before the practice was stopped altogether, much to the advantage of the farmer as well as to the benefit of the men themselves. It is easy to join a popular movement; but when two young people start an unpopular movement like the above they deserve the gratitude of the community.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

THE "MOVIES" AND BEEKEEPING.

Moving pictures are all the rage; and while there are some objectionable features connected with the way the moving-picture business is overdone, yet there are some very good lessons that can be learned from them. I have often objected to the too constant going to moving-picture shows, especially of school children. Another objection is raised against pictures that ought not to be shown on account of the evil effects that they may have, especially upon the younger people. But there are many films of a purely educational nature, and many of these are valuable indeed, as much can be learned from them that would otherwise remain unknown to many persons who do not have the opportunity to travel or even read about these things.

Making use of the educational feature of these films is something that has been uppermost in my mind for several days this week, and it may be of interest to mention the reason for this. It happened that one of the picture-film concerns decided to make up a film of scenes illustrating many of the different industries we are engaged in here at New Braunfels. This is to be shown here in our local picture shows first, and then this film will make the rounds of the company's circuit of a large number of cities and towns of the State. In this way a wide distribution will be obtained, and the advertising feature of the film should be worth considerable to our city, and to those who are represented in the various industries displayed by it.

Beekeeping, in connection with poultry-raising, as a hobby and side line, will be displayed as being the business or industry represented by the writer. Handling the bees in the apiary and removing some honey, the very thing that we produce for sale, and that we want to advertise, and this followed by views in the poultry-yards, from which fine stock and egg-settings are our specialty makes interesting picture-show stuff. Each firm or individual is entitled to a title preceding the pictures that are reeled off, which will explain what follows in the scenes.

It occurs to me that such film displays should aid in advertising one's business, to a certain extent at least; and if the title preceding one's industry is worded well, good results should be obtained. It depends, of course, how a thing of this kind is shown up, and whether the title and what follows will awaken the thought that we

would like to have awakened to bring the results desired. In addition to this the question arises as to the cost of such round-about advertising in comparison with the results obtained.

The charge for making up a thousand-foot reel, showing our various industries of the city of New Braunfels, is based on \$200 for the cost of the entire film. Thus each subscriber represented is charged 20 cents per running foot, according to the number of feet that he wishes to use. A hundred feet, therefore, would cost \$20.00. While a hundred feet does not run a great while in a single show, it is true, yet it must be figured that such a film will be run over and over again in many different places during its circuit; and even after such a circuit is completed, the film may be taken over by managers of other circuits if the film is interesting enough. Just what will be done with the film we are having made here, and what the consequent results will be, is difficult to predict; but we hope to be able to report at some later time whether the venture has been a success or failure.

Right in connection with the above I have thought that entire films made up of interesting matter about the handling of bees, hives, etc., the honey, honey put up in nice packages, and stored on the shelves in glass, with proper signs at various places all through the film, bearing the words "Honey for Sale" would be an aid toward creating a greater demand for honey. Proper titles scattered throughout the film scenes could be made to explain in such a manner *that the spectators would be honey hungry by the time the end of the film is reeled off.* This sounds like a fairy tale, and there may be something in it. In order to ascertain the value or the failure of such advertising, only a trial is necessary, and it seems to me that the National Beekeepers' Association is the body that should make such a trial. The funds of the old League, subscribed for the purpose of advertising the beekeepers' products, should be available for this purpose. I believe that several good films could be made up that would be a real credit to our industry; and if gotten up with the proper care, and the advertising idea kept carefully in view, good results ought to be obtained. The cost, however, in comparison to the effect that such film advertising would have on the demand for honey, may be too great. That would have to be investigated. If it is not found to be so, I should like to see an experiment of using the "movies"

Continued on page 730.

Conversations with Doolittle

At Borodino, New York.

DIFFERENCE IN BEES.

"Is there a difference in bees as to their characteristics, ways of working, etc.? I was told a few days ago that there is as much difference in bees as there is in any of our domestic animals."

Nearly all practical beekeepers recognize that there is a great difference in the varieties of our bees, while the most observing are free to admit that there is quite a difference among colonies of the same variety. I hardly think that anybody having had very much experience would say that all bees are alike in temper. I believe he would be ready to admit that some colonies are more vicious than others. Bad handling will make almost any colony of bees ugly; but there are some colonies that are so cross that it is almost impossible to open their hives unless they are thoroughly subdued with smoke.

I had a colony of dark Italian bees once that I could hardly to do any thing with, while nearly all the other colonies having queens from the same mother were so quiet that they could be handled without veil or smoke. But with that colony it was with much difficulty that the hive could be opened and the combs lifted out unless an assistant kept smoke pouring in upon them all the time. And this trait was characteristic of them until I made a change of queens.

Some colonies will cap their surplus in the sections white, while others will cap so closely to the honey that all of their output will have to be classed as second. Some colonies will fill the sections with honey completely, capping even the cells all around next to the wood, while others will leave "peep holes" in each of the four corners, and sometimes the comb will not be secured to the sections on the sides at all—just attached at the top and bottom. Then some colonies will build comb only when there is a fairly good flow of nectar, stopping whenever there is a slight scarcity caused by a few cool or rainy days, so that the completed sections have an uneven or "washboardy" appearance. Other colonies, when they commence in the sections, expect to fill them without stopping to think whether the nectar yield fail before they can complete the sections. Hence the whole super or supers of sections come to a finish as smooth and perfect as if planed and sandpapered. I once had a colony which gave 309 pounds of such section honey, and used this difference in comb-building to great advantage by stocking three-fourths

of the colonies in the whole apiary with young queens from the mother of this colony.

Some colonies will gather great quantities of propolis, and plaster it all over the sections and separators till it runs down and collects in drops in the corners, much to the disgust of the one who has the sections to clean for market. Other colonies will plaster the combs with propolis, thus spoiling them for future use as bait sections, and giving the cappings of such combs as are marketable a disgusting appearance to the one desiring to purchase honey. Other colonies will put in burr and brace combs between the supers, or between the supers and the hive below, often attaching these to the separators and the nice cappings on the face sides to the combs in the sections, so that, when the honey is removed from the supers, the chunks of capping partly, if not entirely, spoil the salableness of such sections.

Some colonies will work earlier in the morning and later in the evening, and keep persistently at it, when the scales will show only a few ounces gain each day, while other colonies seem to think there "is nothing doing," and so loaf about the hives all day, or try to rob these industrious ones. The business thrift of other colonies is very marked. With a far smaller number of bees than some of their neighboring colonies have, they are continually increasing their stores, and at the end of the season they will have much more to show for their season's accumulations than will colonies that were more populous in early spring.

Some colonies gather more pollen than is needed, crowding the brood-combs so full that there is hardly room for the queen to occupy with eggs for the well-being of the colony, or spoiling much of the section honey by filling with pollen many cells throughout the whole super.

Much more might be said in regard to the variation and different traits of different colonies; but the point I am anxious to bring to bear upon all who read these lines is this: All these differences hinge on or depend upon the queen and the drone with which she mates. We say this colony does this, and that colony does that; but in reality the whole depends on *one individual bee*, and that is the queen. Hence it is to the interest of each beekeeper to know that all his queens come up to the highest score along all the different points that tend toward perfection.

General Correspondence

WHITEWASHING IN PLACE OF PAINTING HIVES

Painted Wood Not as Porous, and Therefore Not as Good for the Bees

BY M. G. DERSVISHHEIM

The walls of beehives should be porous on the same principle that human clothing should be porous. The feathers of birds, too, are arranged so that there are air-spaces. Porous matter is not conductive of heat and cold, just as the human clothing is not, and keeps its contents in natural heat. Ice is wrapped in felt to prevent the cold from escaping and the outside temperature from penetrating. If one's clothing were made of India rubber or of oilcloth the body would be in an unclean and unhealthy state. The hive is the clothing of the colony of bees, and is intended to retain the heat and to let the damp and gas produced by the breeding and breathing of the bees escape. Wood, especially that of a soft quality, is porous, and therefore it is the best material for the hive.

In olden times, most hives were made of straw. Straw skeps, I believe, keep the bees in a dry state and warm—the former owing to the porousness, and the latter owing to the dead air contained in the straw. In the eastern parts of Europe and in Asia Minor most hives are made of dome-shaped baskets, and the outside of these is covered (plastered), about one inch thick, with mud consisting of earth and cow's manure. These hives keep the bees in a very comfortable state.

Hives made of wood come second, but owing to the great advantages derived from modern improvements in apiculture there is no doubt that wood is the best material (especially soft and light wood) for the construction of hives, provided it is not rendered impermeable by the application of oil paints, etc.

In winter and spring the inside of a hive occupied by a strong colony and covered with any impermeable material, such as oilcloth, gets wet owing to the vaporized water from the breathing of the bees, to the greater consumption of honey, and to the insufficient porousness of the body of the hive. Part of this vaporized water leaks from the entrance in a condensed state, and this shows the excessive amount of dampness. No doubt such a state is harmful to the bees within.

I strongly recommend whitewashing with quicklime. It is the cheapest and easiest

method. It is known to everybody that white reflects the heat from the sun, and the hives look nice and clean.

Take six pounds of quicklime, sprinkle on this by degrees about a gallon of water. When it gets hot, and the quicklime swells and cracks, sprinkle more water. A little later pour on about four or five gallons of fresh water and mix it with a rod and then take about half a pound of alum, break it into small pieces and melt it over a fire with a little water. Or better, pound it and mix it with the prepared lime for whitewashing. This alum makes the whitewash stick well to the wood and does not come off on one's clothes or hands when handling the hives. In the absence of alum ordinary cooking salt can be used, but alum is preferable. This whitewash can be applied quickly with a broad whitewashing-brush.

For the purpose of observation, for 12 years I have made use of several hives not painted and some which were painted. The inside of the hives which were painted became as black as if lamp or chimney black had been applied, while those which were not painted have remained light brown in color, which is, of course, the color of propolis or polish made by the bees. I recommend that progressive apiarists try a few unpainted or only whitewashed hives and then compare them after one or two years with the state of the painted ones. At the same time I also recommend that in winter and spring they use on the frames quilts of porous material, for instance of cotton wool, or bags filled with chaff or sawdust. I make use of empty merchandise cases which serve for protecting the hives on all sides from the direct rays of the sun. My way of covering the top of the brood-nest is with boards $\frac{3}{8}$ inch thick. In this semi-tropical climate (35 latitude) this permits the dampness to escape very slowly through the thin strips laid over the top-bars of the frames, gives very slow ventilation, and allows escape of dampness in winter through the joints.

For higher latitudes I should think sawdust or chaff cushions over the frames would be best for winter. A chaff sawdust, with two or three sheets of rough brown paper underneath, will keep the heat without preventing the escape of dampness, and will drive out the dampness.

On p. 812, Dec. 15, 1912, Mr. J. E. Crane, as foul-brood inspector, reports, "I found the bees in box hives in decidedly better condition, as a rule, in the spring, than those in frame hives." He says further, "One

man asked me in regard to changing from box to frames, or patent hives as he called them. 'Don't, don't,' I said, 'unless you are going to use frames,' for of what earthly use are frames in a hive unless they are used by a beekeeper? They cost more, and are not so good." I have reason to believe that the box hives referred to are not painted, and if I am correct the better state of the bees in the spring is owing to the porousness of unpainted wood—that is to say, the hive is free from dampness. And the state of the colonies in movable-frame hives is not as good as in box hives, because there is less chance for the dampness from the painted walls of the hives to escape, paint having rendered the wood impermeable.

In Bulgaria I have seen hives made in the shape of a bell, the same as straw skeps, but much wider and taller. These are practically like baskets turned upside down and covered with a kind of plaster made of earth. Such hives are extremely porous. Bulgaria is about 43 latitude. Cold is severe in wintertime, and yet bees are very comfortable in this kind of hive, and they are wintered outdoors.

Nicosia, Cyprus.

SOME OLD HONEY

Samples from Ten to Thirty Years of Age

BY R. C. AIKIN

On March 27, 1884, I reported to the *American Bee Journal* that bees wintered well on summer stands, and in fine condition at that date. See p. 218, for April 2d issue. In the Sept. 24th issue of the same year on p. 621 appears the following letter:

Worst season for ten years. We have no new honey this year, and all of the old honey is gone. I have 80 colonies of bees, and not five pounds of honey. One man had a little early honey at the fair, and he will have to feed that back for winter. We have less honey this year than for ten years past. Can not some one send us enough for a taste when company comes?

Shambaugh, Iowa, Sept. 15.

R. C. AIKIN.

Some time after this letter appeared, a preacher, a friend of mine, handed me a quart bottle of honey which had been handed him by some friend where he had been preaching, or at some meeting, in another part of the State. The bottle was filled with extracted white-clover honey, and a label on it which read as follows: "The Promise is Fulfilled. This is the land that flows with milk and honey, and here's the honey from H. M. Noble's apiary.—Swedesburgh, Iowa, 1871." Later I changed the label date to 1884. I suppose he put on the old one just to give his address, etc.

That is all I know of Mr. Noble. I think I wrote him one time about the honey, but never had any communication from him. The bottle was set up in my honey-house, and stood around for several years. At one time it lost its cork and stood open for some time, and a few wax-moth-larvæ droppings got into the honey, and then I recorked it. No record was ever kept, but within probably a year or so the honey candied. Still later it partially liquefied, then a thin layer recandied over the surface on top. That layer got displaced in handling the bottle, and sank to about the middle, resting one edge on the candied honey in the bottom, and the other edge against the bottle side, standing at an angle of about 45 degrees, where it has remained ever since.

I carried the bottle with me to Colorado when I moved there; then to Chicago, and had it on exhibition at the 1893 National convention; back to Colorado again; showed it some times at our Colorado State conventions; then brought it here with me two years ago last December. I have not sampled it for several years, but we used to taste it occasionally until about one-third of it disappeared. Of what is left, it has for some years been about half candied from the bottom. Very little change has been observed for the past ten or twelve years. When I received it, it was very clear; now it is a reddish dark shade about like sorghum molasses. It must be 29 years old this fall. I had this in Colorado for about 20 years, and in that climate the tendency of syrups is to become more stiff or thick. Now, after 2½ years, here it is still quite thick, even in this August weather.

BOTTLE NUMBER 2.

In 1889, at Fort Collins, Colo., I took a Hood's Sarsaparilla bottle and filled it with very clear alfalfa honey and set it up in the gable of the honey-house, close to the roof, above a window. That winter it candied solid, but the heat of the next summer partially liquefied it. Finally it candied from the bottom upward just about half way. There it stands to-day, and is before me on the desk now as I write. The candied lower half is about the appearance of lard fried from meat with just a tinge of dark. The upper half is clear enough that objects can be seen through it, bottle and all, and is of a reddish amber hue. The bottle is sealed, and has been opened very few times since filled, and not at all for several years. It seems a trifle thinned on top, but shows no sign of ferment. This is 24 years old.

SAMPLE 3, JUST OF AGE, 21 YEARS OLD.

This is probably alfalfa and sweet clover mixed, or at least from one of these sources.

It is in a vase of globular form, the bowl being in outside measure about seven inches wide and a good six deep, then the neck and mouth is straight, and about $3\frac{1}{2}$ inches opening, the inside of neck being ground, and a glass ground stopper to fit it just as bottles are made with glass stoppers.

This sample was produced at Loveland, Colo., in 1892. As is usual in case of all extracted honey there, it promptly candied, and with compact close grain resembling lard. How long it remained candied I do not remember, but, as nearly as I can recall, it largely liquefied within three or four years, and gradually in part crystallized until about half of it was of crystals about twice the size of ordinary plasterer's sand. Once the vase in moving got wrong side up, and a little of the liquid oozed out. Now it stands with the lower half liquid with crystals in it; the upper half just crystals. It looks like a very coarse light-brown sugar. There is just a possibility that I once applied heat, and liquefied this, but can not now tell. This vase has been unstopped often, and is not sealed only as the honey clinging to the ground stopper seals it.

NUMBER 4, 19 YEARS OLD.

This is in a twin vase to number 3. It is probably alfalfa and sweet clover. I know that in those years we usually got some alfalfa flow in June and July; then in July and August the clover and the mixed crop harvested together. I had no thought then of how long those samples would be kept, nor of how interesting would be a full history, so kept no records. Later I began to realize my mistake, and to put date records on them. I now wish that I had complete records.

This sample I think has never been liquefied by artificial means. I know that, like all extracted honey there, it candied as solid as fine-grained lard. I can not remember all of its changes, but to-day it stands with a little better than half, the lower half, looking like so much scorched lard, and is compact as would be so much dirt settled in a pail of water; the upper portion being a liquid with no granules in it, is of a dark reddish-amber shade. This, and sample No. 2 that is 24 years old, are almost identical in appearance in the candied lower half, being like so much scorched lard, and compact at the bottom, and the liquid part at the top, and of amber color. There is an abrupt change from the candied to the liquid.

SAMPLE NUMBER 5, 18 YEARS OLD.

This is in a quart Mason fruit-jar. It was produced at Loveland, Colo., in 1895, and was liquefied and exhibited at the fair in 1896. It is full, and sealed as fruit is

sealed in these jars. To-day it stands with the upper third of very coarse granules like sugar; the lower two-thirds is an amber liquid with coarse granules all through it. I think that those Colorado honeys almost invariably granulate very fine at first, but after being heated the second granulation is a truer crystallizing, but never solid. I have repeatedly noticed the older once-melted honeys showing that tendency to form coarse crystals scattered throughout the liquid.

These samples as they grow old are becoming more and more interesting to me. I often look at them, and recall the strenuous days when in my prime I was wrestling with bee problems. The two vases have for years stood either on top of my desk, or on the bookcase, or somewhere in the living-room, constantly in the light, and have been knocked about, sometimes being taken to fairs or conventions. They make a pretty ornament in the room. Each vase contains about a gallon of honey.

I have a sixth sample in a quart jar. This is just a remnant of dry granules. The jar not being sealed tightly while moving, the liquid leaked out. I have just sampled it, and it still tastes like honey. It is 17 years old. I did have other samples 20 years old and even older, of different sources of bloom, but they were put in tin pails, and the pails corroded, and spoiled the samples. There should be no metal in the receptacle for preserving honey samples.

Blessing, Texas.

A BEGINNER'S EXPERIENCE

How an Amateur Starting with a Stray Swarm became the Owner of Thirty-four Colonies

BY C. E. BUSH

I have always had a distant respect for the honeybee; but my actual experience with bees dates back about a year. My father hived a stray swarm, and then I became interested in bees, and the bees became interested in me.

A second swarm came, and we hived that. After that it fell to my lot to take care of the bees, with the friendly assistance of one of our neighbors, who is also somewhat of a novice with bees. Equipped with an old hat, a good-sized piece of mosquito-netting, and a pair of old gloves, with some sock-legs sewed on for gauntlets, I began to think that I was really a beekeeper.

The next summer we caught three swarms. I took one of them from an old tree, and another out of a hay-barn. The one taken

from the barn was a very large colony, and it was necessary to make three trips in order to get all of the bees. This one stray swarm made two good-sized colonies and a small one. I paid the neighbor fifty cents to catch a swarm for me, making a total of seven colonies. Then I became very enthusiastic and bought ten colonies, going thirty-five miles in December to get them.

In February I took two first-class beemen into my apiary to look my bees over. We found that one colony had been robbed out. One of the men remarked that conditions seemed to indicate foul brood. We opened the hive, and there we found foul brood in an advanced stage. We examined the rest of the colonies, and discovered that four others were diseased. If any beekeeper knows by experience how a novice's heart gets sick, then he will know how I felt. The two men whom I mentioned before told me that I would have to clean up the apiary, and explained how to do it by the McEvoy treatment.

I had a tank built in which to do the boiling. One of the men came over to help me. We shook the bees on some old comb and fed them some warm syrup. Then came the process of scalding and cleaning the frames, etc. After I took my assistant home, the rest was left to me. On the evening of the fourth day I took the clean hives and removed the old hives on the stands, placing the clean ones in their places. I shook the bees upon new clean foundation, and on some pieces of clean comb I tied into a frame in each hive. I supplied them with some more syrup, which they cleaned up and put in the comb.

I fed them again on the morning of the fifth day, and all seemed to be doing well until about three o'clock of the same day when two of the colonies left their hives and settled in the grass. I was stumped at first, but set my wits to work. I happened to remember that some one had said that a little brood would help bees in cases of this kind. I drove two miles and took from two clean colonies a frame each of brood and honey, returned home, relieved the bees, and gave them the brood. As soon as I set the hive before them on the ground, a few bees went in and discovered the new frames of brood. They rushed back and settled on the alighting-board, after which they "stood on their heads and waved their wings" for joy. Then it seemed as if the other bees of the colony could not rush in soon enough. I had no more trouble with them.

Thirteen colonies were left after the experience with foul brood was over. I bought one more colony. I then leased my bees to the man who had helped me clean up the

foul brood. I furnished the bees, half of the hives and foundation, and was to receive in return half of the increase and half of the honey. He was to increase all the bees would stand. In March we cleated the hives and cut burlap sacks in halves, putting one thickness of sack over each hive for a screen. We also screened the entrances. We started out one morning early to move them twelve miles, arriving at the out-apiary about 1 o'clock in the afternoon. As the sun was shining warmly it proved to be a very hot day. As a result we lost two of the strongest colonies. That left just an even dozen. My friend was equal to the difficulty, however; for after taking charge of the bees he succeeded in increasing them to thirty-four colonies. The bees, too, did their part, for they made stores enough to keep them through the winter.

Ceres, Cal.

Horse Stung by a Swarm; Who was Responsible?

Will you kindly give me your opinion on the following case which happened in this neighborhood some time ago, and which may cause considerable litigation?

A and B are neighbors. A has a lane past B's house 16 ft. wide. B keeps bees in a back lot which is $2\frac{1}{2}$ rods from A's lane. One day as A was coming along his lane he saw a swarm of bees near the far end flying around a tree which is just on the other side of his lane and some distance from the beeyard. A does not wait for the bees to settle, but tries to drive through them. A escapes without injury, but the horse is so badly stung that it dies. Knowing that the swarm came from one of B's hives, can A hold B responsible for the loss of the horse, and collect damages?

A. B. C.

[In answer to your question we will say that a good deal will depend on whether proof can be produced to show that the bees that stung A's horse were actually the property of B. For instance, if Mr. B admits that the swarm came from one of his hives, or if one or more persons testify that such swarm issued from one of his hives, and then occupied a position in the highway, as described, possibly Mr. B would be liable for partial damages. In that case we would recommend Mr. B to arrange a settlement with A if he can do so. If, however, there is no proof to show that the bees came from Mr. B's yard, that it was a vagrant swarm, coming from nowhere, then B is not liable. It does not follow that because Mr. B owned bees that the swarm in the highway was his property. As we understand the matter, the burden of proof rests upon Mr. A to prove that the bees were the property of Mr. B.

In any case, we do not believe that Mr. A can collect full damages; and we do not know that he could, even though it were proven that the bees in question belonged to Mr. B. Mr. A had the right to the use of the highway; but if he *knew* the bees were in the highway, and *deliberately* drove through the flying bees, and that fact can be proved, the damages, if any, would be nominal. We should think it would be what would be known in court as a case of "contributory negligence." But assuming that Mr. A and Mr. B are neighbors, it would be desirable to have them adjust this matter equitably among themselves if they can.—Ed.]



Apiary of J. L. Strong, Clarinda, Iowa, which has been its owner's sole dependence for many years.

BEEKEEPING AS AN EXCLUSIVE BUSINESS

BY FRANK C. PELLETT

The general tendency is very conservative toward our industry as a business. We are free to advise the keeping of a colony of bees in the attic, or a few hives in the back yard to supply the family with honey and the beekeeper with an interesting diversion. Enquiring beginners are always warned against taking up honey production for a livelihood because of the fact that some seasons fail to supply a profit.

While to begin beekeeping on a large scale without previous experience and a thorough knowledge of the business would certainly prove disastrous, the same may be said of any other business. Beekeeping requires high-grade talent to handle it successfully, and one should never consider beginning in any but a small way, and increasing as experience and inclination justify. On the other hand, the men of my acquaintance who depend upon honey-production for a livelihood get as large an income on the average, with less capital invested, and less wear and tear, than in other lines of agriculture. We have been entirely too conservative regarding the possibilities of honey production, and I do not hesitate to say to those who wish to know whether they

can make a living in the business that, if they will master it fully in all its details, they can do well at beekeeping.

There are many advantages also. The beginner can start with an investment of only a few dollars, and learn the ins and outs of beekeeping while attending to his other business, and not relinquish his source of regular income until such time as he gives the matter a thorough test and has had an opportunity to determine whether he is fitted for the work.

The first essential to success, of course, is a good locality; for without a suitable flora the bees can not gather a profitable crop. Given a good locality, the rest all depends upon the man.

Among the successful beekeepers of Iowa, three men are conspicuous; and these may be, perhaps, considered typical of the lot. J. L. Strong, of Clarinda, has kept bees for 46 years, and for more than a quarter of a century has made them his sole dependence. His home and business have been paid for from the profits of his apiary. In addition to honey production he does an extensive queen-rearing business, and depends for the most part on a single yard which he keeps at home.

F. W. Hall, of Colo, has been in the business for many years, and his standard of living is as high as that of the wealthiest

people of his community. His home is among the finest in the town, his daughters are college graduates, and the family enjoys every convenience and advantage of education and travel.

B. A. Aldrich, of Smithland, has been engaged in general farming on rented land for years until recently. Failing to make this line of work profitable he closed out every thing but the bees, which he had found profitable as a side line, and devoted his attention to them exclusively. Mr. Aldrich says that the only mistake he has made was in not dropping the principal business and devoting all his attention to the side line several years sooner. Mr. Aldrich harvested a crop of nearly 14 tons of honey from 300 colonies last year, and bids fair to do as well, or better, this year. He has the finest equipment in the way of a honey-house and labor-saving machinery that I have ever seen in the hands of any beekeeper; and by this means he is able to do nearly all his own work and thus reduce his expenses to the minimum, which is, of course, impossible with general farming.

In the face of such examples as these we surely need not fear to recognize beekeeping as a dependable pursuit. If a man will recognize the fact in the beginning that there is something to learn, and that to be successful he must go about it in a business-like manner, and observe the same caution that he would do in undertaking any other line of business with which he is unfamiliar, the chances for success are better, in my estimation, than in most other lines which are highly specialized.

Atlantic, Iowa.



Home of F. W. Hall, Colo, Iowa.

is more in harmony with the nature and habits of bees. Colonies wintered in the open with suitable protection will usually have several cleansing flights at frequent intervals, thus enabling them to void their excrement in a natural manner.

Since it is my purpose to measure up the situation with nature's try-square, regardless of any preconceived ideas, perhaps a little nature study along these lines may help to a better knowledge concerning the domestic economy within the hive. It has long been a source of conjecture among beekeepers why an old box hive with open cracks admitting chilling drafts will carry its colony through the winter in safety year after year, in open defiance of all theories relating to moisture, ventilation, and protection. But this is nature's handiwork, unmolested by the blundering hand of man; and a closer scrutiny reveals the fact that the internal arrangements within that hive are in perfect harmony with the habits of bees, wherein every angle and curve of the combs betokens a wisdom of architecture beyond the power of man to comprehend.

Our first thought upon opening such a hive is, "Why do the bees build their combs so crooked and irregular?" but if one looks a little closer he will notice that there is "method in their crookedness," since many are converging toward the center like the spokes of a wheel; and if the examination is made in mid-winter the cluster will usually be found in the center, as represented by the hub of the wheel. The wisdom of such an arrangement will be more apparent when one understands that it is the habit of

THE OUTSIDE WINTERING OF BEES

A Nature Study

BY J. E. HAND

The outdoor wintering of bees is practiced with varying results throughout the United States, and even in portions of Canada, where it is rapidly coming into favor. Beekeepers everywhere are coming to realize more and more that open-air wintering

bees, so far as conditions will permit, to cluster together in a solid ball as a means of protection against extreme cold. Since this is nature's method, it is safe to assume that, in no other position, have the bees equal power to resist cold. It will be noticed that this arrangement enables the cluster to remain in the center of their base of supplies, and also admits of expansion of the cluster during a warm spell to bring a new supply of food within reach of the cluster. Likewise, it allows contraction during a cold period without the loss of bees that otherwise would be caught on the outside of the solid slabs of cold honey, and perish. While bees are sluggish in their motions in winter, when undisturbed, they are not hibernators; and if a small bunch becomes separated from the cluster, being of insufficient numbers to create sufficient heat to sustain life, they will soon perish with cold. It is thus that colonies are often greatly depleted in numbers in modern hives where no provision is made for the expansion and contraction of the winter cluster.

At first sight the bees composing a natural winter cluster appear to be in a semi-dormant state. Such is not the case, however. On the contrary, they are keeping up a constant circulation inward and outward. It is thus that motion, combined with the heat of their bodies in close contact, will enable them to maintain a normal brood-rearing temperature in zero weather, such is the wonderful heat-producing power of a cluster of bees under normal conditions. These are nature's methods untrammelled by man, who deludes himself with the idea that he can improve upon nature's methods. But let us take a view of the internal arrangement of a modern hive, as ordained by the wonderful wisdom(?) of man.

The first thing that attracts one's attention is the absence of sufficient space below the frames to accommodate the winter cluster when suspended in a solid mass from the lower edge of the combs, according to the habits of bees at the beginning of winter. Likewise, the close spacing of frames that is practiced under modern methods leaves no opportunity for a winter cluster in sufficient numbers to maintain a normal temperature by natural methods. On the contrary, they are compelled to spread themselves out in thin layers between solid walls of cold frosty honey, and every layer separated from its neighbor, with no means of communication between them, except by traveling around the outside of solid slabs of cold honey, which would mean certain death. Thus in this unnatural and isolated condition they are unable to employ nature's method of heat production; and, having no

other alternative, will resort to an abnormal consumption of food in a vain attempt to maintain a normal temperature, and the result is likely to be death or clogged intestines, followed by dysentery. As a last resort bees will crawl into every empty cell within reach, where, if the weather is *very* severe, they will be likely to be found dead in the spring.

THE WINTER NEST.

What is the result? The beekeeper comes along in mid-winter to inspect his bees, and, finding them in the condition just described, instead of getting down to the root of the matter, and reasoning from effect to cause, he jumps at the conclusion that a winter nest composed of empty cells, into which bees can crawl for mutual protection against cold, is an important factor in successful outdoor wintering; he even intimates that the honey was removed from those cells for the express purpose of forming an alleged winter nest; while in reality the presence of empty comb in the center of the brood-chamber is easily accounted for from the fact that they were occupied with brood until after the close of harvest. While a winter nest composed of empty combs might well be chosen as the lesser of the two evils, it is entirely inadequate to the needs of a winter cluster, since its presence endangers the life of a colony just in proportion to the amount of empty comb involved. Undoubtedly the importance of an alleged winter nest has been slightly overestimated; and the wise beekeeper will see to it that there is no considerable amount of empty combs in the center of the hive at the beginning of winter.

Let us take a view of the internal arrangement of a modern hive equipped with the improvements suggested, and measure them up with nature's try-square, one by one. First, a liberal space below the combs, said combs being solid full of honey, will ensure the clustering of the bees in a compact form, suspended from the lower edge of the combs, and below their base of supplies, which is the natural position of a cluster of bees at the beginning of winter. It is the habit of a winter cluster under normal conditions to move upward instead of sidewise until a brood-nest has been established. Therefore as the season progresses, and the consumption of stores removes the base of supplies too far from the cluster, in order to keep in touch with their base of supplies the cluster will advance to a natural position in the center of the combs. Here, in the center of their base of supplies, and in a position affording ample provision for the expansion and contraction of the winter cluster, through the center of the brood-



A part of the apiary of B. T. Bosserman, Williamstown, Ohio, showing his concrete cases holding packing material around regular hives of wood.

chamber, horizontally as well as vertically, with full and free communication among all the bees in the cluster, they will establish a permanent clustering place, wherein their brood-nest will be established. Mid-winter brood-rearing will begin according to the habit of bees in a normal condition. The importance of wide spacing is not so apparent when other conditions are right, and nine frames in a ten-frame hive is sufficient.

This method, when measured with nature's try-square, would seem to harmonize with the habits of bees; and since it approaches as closely to box-hive conditions as is possible under modern methods where straight combs are imperative, it should give equally satisfactory results in wintering. Thus, while we may not improve upon nature's methods we can imitate them so closely as to give equally good results.

Birmingham, Ohio.

BRINGING COLONIES THROUGH THE WINTER STRONG

Higher Temperature and More Ventilation Needed

BY WILLIAM BEUCUS

The editor of GLEANINGS has long and earnestly persisted that bee-cellars should be abundantly ventilated. Doolittle, on the other hand, has insisted that ventilation is

not necessary. Until the last year or two I was inclined to side with Doolittle, for we have wintered our bees with good success without excessive ventilation, and sometimes without any ventilation whatever. In the winter of 1909 our loss out of 140 colonies was nothing. In 1910, 160 colonies wintered without loss. In 1911, six out of 176 failed to live through the winter. One of these was queenless; one starved because of too much pollen and too little honey; four had been weakened by the attacks of a skunk. In 1912, '13, the bees again wintered successfully, and there were 192 colonies. Many will say, "What more do you want?" The answer is, "Stronger colonies in the spring." We want every bee that can be saved. We have learned to carry through every colony, now we want to carry through every bee—if that is possible.

The endeavor to carry through all bees led me to the practice of ventilation. I have been troubled during the past three winters with bronchitis, and consequently have been very sensitive to changes in the environment. On the first of each month, all dead bees are swept up and measured, which requires some time. Each time this was done, the bronchial tubes felt raw. Why? It certainly was not the low temperature, for it was warmer in the cellar than outdoors, and no rawness was felt out-

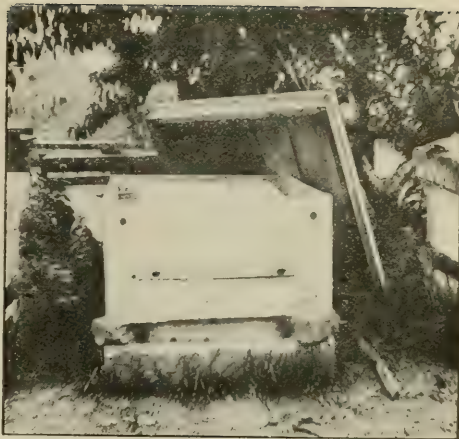
doors. It could not be dampness alone either: for on wash day, when there was an unusual amount of moisture in the house, no ill effects were experienced. That rawness was due to a combination of two conditions—low temperature and damp atmosphere.

Why is one afflicted with colds and bronchitis in the winter, any way? A right answer to the question will shed some light on the question of wintering bees better. There are in the human system four avenues for the escape of moisture and impurities—the bowels, the kidneys, the lungs, and the skin. In the summer the skin is very active the most of the time. Fresh vegetables and fruit are eaten in abundance, which aid in keeping the system in good condition. Fresh air is breathed almost all of the twenty-four hours of the day. The moisture and impurities have abundant opportunity to escape as fast as formed. But in winter the skin is inactive. One does not perspire so much. Fewer fresh fruits and fresh vegetables are eaten, which clogs the system, and impure indoor air is breathed a great deal of the time. Now notice. These acute diseases come in the winter with the four avenues for the escape of impurities sluggish but still open.

How is it with the bees? They have but three avenues for the escape of moisture and impurities—the bowels, the malpighian tubules, which take the place of kidneys, and the tracheal tubes, which take the place of lungs. But when the bees are placed in the cellar, conditions are imposed which close entirely two avenues for the escape of moisture and impurities—the bowels and the malpighian tubules. Thus there is but one avenue left open, and this is obstructed. How is it obstructed? By the moisture present in the atmosphere. Evaporation can not take place rapidly in air which is already at the dew-point. Is it any wonder that the bees become uneasy, and fly out on the cellar floor to die?

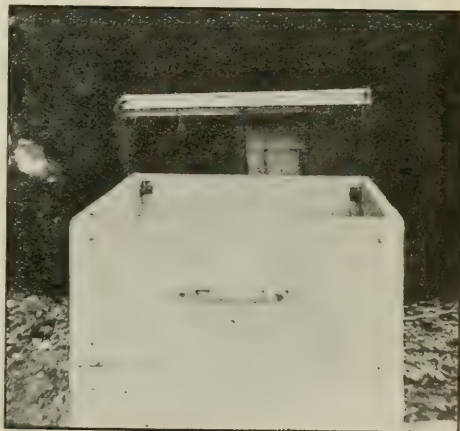
Bees are not great exponents in the winter; but in maintaining a comparatively high temperature for five months there is sufficient waste to demand an easy escape for moisture and carbonic-acid gas.

What evidence is there that bees are needlessly dying? Go into the bee cellar and stay a while with a lantern. Occasionally you will notice a bee which flies vigorously. Take a few of these into a warm living room and notice what follows. Occasionally one will preen itself for two, three, or even five minutes. Is it getting ready to die? It doesn't look that way. Now give it a little honey. Its vigor is quite inconsistent with superannuation. It seems a



Cover removed, showing the hive inside the concrete winter case.

fair inference that these bees leave their hives because they feel uneasy. I have frequently raked into a cluster of bees in the cellar when removing dead bees from a shallow entrance, but the bees did not fly at the light. They hurried back to the cluster. Last February, with a temperature of 50 in the cellar, four feet from the floor, I stood before a colony with a lighted lantern. The bees were loosely clustered, and some were quietly resting on the bottom-board an inch away from the cluster. They did not fly at the light. I touched one of these isolated bees. It immediately "stood on its hands" and moved sluggishly toward the cluster. A little later I called my wife down to look at a powerful colony which had become so uncomfortably warm near the ceiling that the



Bosserman's winter case is made of $\frac{3}{4}$ -inch slabs of solid concrete bolted together at the corners. Wooden cleats are also bolted on for a hand grip. One case weighs from 65 to 80 lbs.

bees had come outside and clustered on the front of the hive up to the hand hole. I held the lantern up within two inches of the cluster. There was a slight movement among the bees, and one bee raised up and buzzed its wings a little. That was all. Not one bee left its place.

I will tell you why. We put in a hot-water plant last winter; and to lower the temperature of the cellar we found it necessary to open the inside cellar doors, leaving the outside ones shut. That gives us a temperature 8 degrees higher than it used to be before the plant was put in, and such abundant ventilation that the air is dryer.

My cellar is 30 x 30, and is partitioned off so that the bees are in a separate room. The floor is cement, and the bee apartment is plastered overhead. The temperature in winter was usually 42. Last winter, with a temperature of 46 below outside, it was 38 above inside.

If Ira Barber could rise from his grave and read these lines he would no doubt smile and exclaim, "I told you so."

Cadott, Wis.

THREE DIFFERENT BEE-CELLARS COMPARED

The Right and Wrong Way to Ventilate

BY E. S. MILLER

For a number of years I followed the advice to beginners to winter my bees outside, with resulting losses varying from 10 to 50 per cent of the colonies. Then I began to think that there must be a better way, and to hope that, before finishing, I might be able to work out a plan by which 100 per cent of all colonies might be carried through in good condition, providing, of course, they were in proper condition when placed in winter quarters.

Owing to the expense, labor, and uncertainty of results, packing in outer cases did not seem advisable.

About this time I bought another apiary and a few acres of land with a honey-house and a bee-cellar. But bees wintered in this cellar came through in a damp, moldy condition, and with a considerable percentage of loss.

Then a study was made of different modes of ventilation; and for the last five years my average loss in wintering has been about one per cent. There was a loss of only one colony in three winters in case of bees wintered in three cellars. During the past winter the loss was two colonies out of 274.

In order that the construction and mode of ventilation may be better understood I

will attempt to describe briefly three cellars, and compare results.

Cellar No. 1 is under a building, and is 18 x 20 x 7½ ft. It is in clay loam, and is made of solid concrete with cement floor and a plastered ceiling which is even with the level ground outside.

A nearly horizontal sub-earth ventilator extends from a point 30 feet west and enters near the floor. A chimney extends from the cellar floor to a height of about 20 feet, with an opening near the floor. The stove in the room above is seldom used, and it is not necessary for the purpose of ventilation. Door and windows are double; but the floor of the honey-house above has not yet been made sufficiently warm; and the low temperature resulting therefrom accounts, I think, for the losses. Usually the current of incoming air through the sub-earth ventilator, and the current out through the chimney are sufficiently strong to extinguish the flame of a lighted candle or match. A good current is always present at the opening near the floor in the chimney in cold weather, whether the wind is blowing or not; also at inner end of tube except when the wind is from the east.

The following temperature readings were made with a tested thermometer, and are worthy of consideration:

1913	Temp. Outside	Intake	Outlet	Wind	Draft at Intake
Feb. 19	54	46	45	S.	Moderate
Feb. 22	26	32	44	W. Strong	Strong
Feb. 24	12	32	40	None	Light
Feb. 28	32	36	40	None	Light
Mar. 2	2	18	39	W. Strong	Strong
Mar. 5	34	37	43	S. W. Mod.	Strong
Mar. 11	54	45	45	S. E.	Out, light
Mar. 14	64	48	48	S. E.	Out, light
Mar. 19	63	50	50	S. E. Strong	Out
Mar. 21	24	35	46	W. Strong	Strong

On March 20 a small amount of moisture could be seen at the entrances of a few of the hives in the lower tier, due to a lower temperature near the floor. Repeated tests showed the average temperature at the floor to be approximately one degree lower than near the ceiling; and the temperature near the ceiling was the same as at the outlet. By comparing maximum and minimum temperatures it will be seen that, while the variation outside amounted to 62 degrees, that at the intake was 30 degrees, and the cellar variation was only 10 degrees. Note also the modification of temperature in passing through the intake when there was a strong west wind. The bees (March 20) are quiet, and apparently in excellent condition. The cellar is dry, and with no perceptible odor. Number of colonies, 1912-'13, 104; winter loss, two.

Cellar No. 2 is ventilated in a manner similar to No. 1, except that the intake is about 100 feet long. This cellar is of brick, and is built in sand under a dwelling-house. The bees occupy a room partitioned off 12 x 12 ft., 87 colonies being stacked up five or six hives high. This room is much too small. Nevertheless, the bees are in excellent condition—dry, no odor, few dead on the floor; average losses about one per cent. The current at the intake is apparently stronger than in cellar No. 1. No temperature readings were taken, but the cellar is warmer than No. 1. Losses, 1912, none.

Cellar No. 3, 14 x 20 x 8 ft., made of cement blocks, is in stiff clay. It has four vertical air-shafts outside, extending from the ground surface, and entering the bottom of the cellar; also a dozen 4 x 4-inch openings at each end near the ceiling, which extend up from two to six feet through the cement blocks, and open outside. There is also a trapdoor into the attic, 1½ x 3 ft., which is left open in moderate weather. The spaces between the joints above the plastered ceiling are filled with dry sawdust. This is an excellent example of how *not* to ventilate a bee-cellar, notwithstanding many contend that an opening at the top is all that is necessary. In this cellar no air-currents are perceptible at the opening, either at the top or bottom. The humidity is usually about 100 per cent—that is, the air is completely saturated with vapor. Although the temperature is considerably higher in cold weather than in No. 1, the air is stagnant, odor bad, bees restless, and bushels lie dead on the floor. The small winter losses of colonies I attribute to the excellent condition of the bees due to heavy fall flows of honey. A sub-earth ventilator and chimney will be installed before another winter. Colonies, 1912, 98; losses, none.

Now, what can be learned from these examples? It seems to me that the several winters that these cellars have been used prove conclusively, first, that proper ventilation is necessary in the successful wintering of bees. Second, that, unless there is a chimney, the difference between the temperatures within and without a bee-cellar is not sufficient to produce convection currents that will bring about a proper ventilation. Third, that either a high chimney or a nearly horizontal pipe, entering at the bottom of the cellar, that will take advantage of wind pressure, or both, are the most practical means of forcing the air through and keeping it pure and at the proper humidity.

The question may be asked, "Why not pass the air in at the top?" There are two reasons. The first is, that the underground inlet modifies the temperature by making

the air warmer in cold weather and cooler in warm weather. The second is that, while in cold weather the cold air will drop to the bottom, being heavier, it will not do so when the air outside is warmer than that inside, and there will be little or no ventilation when most needed.

Valparaiso, Ind.

COLONY OF BEES TAKEN FROM A TREE IN FEBRUARY

BY J. S. FURNER

I have a colony of bees that I got last February in the woods two miles from my home. They were found by some boys hunting rabbits. I investigated, and found that the top of a basswood had blown off to a distance of about 20 feet, and the bees were in it. I got a man, crosscut-saw, and a democrat wagon, and went after them. I sawed the log off 42 inches long, nailed boards on each end, covered the hole, loaded the bees in, and in the summer they went to work as lively as any colony that I have.

The log is 22 inches in diameter, with an



Section of a tree containing a colony of bees. The tree was cut in February.



Apiary of J. T. Kight, Southport, Ind.

opening inside ten inches across, throughout the length of the log. There is nice white comb clear from the bottom to the top. I have a notch at the bottom through which the bees go out and in.

Lima, N. Y.

EARLY YIELD OF HONEY IN INDIANA GOOD

BY J. F. KIGHT

The spring and summer honey harvest is about to draw to a close (July 21). The yield has been very good in quantity and excellent in quality. Owing to about three weeks' drouth in June the white and alsike clovers were cut a little short; but while they did last, the bees carried in nectar with a rush. There seems to be considerable sweet-clover honey coming in now; but I can notice some falling off, as I have one good strong colony on a pair of scales, and the nightly balance is running only about $1\frac{1}{2}$ lbs. daily, while it ran as high as $6\frac{1}{2}$ lbs. during the palmy days of white and alsike clover in May and June.

As a rule the general honey crop in Indiana has been good this year, and in many localities there will be a flow of smartweed and aster honey this fall.

AN EXPERIENCE WITH AMERICAN FOUL BROOD.

I have had a little experience this year that was not on the program; and while I

have always dreaded the thought of disease among bees I can now say that I am really glad that it happened, although it cost me several pounds of good honey and the loss of some very fine wired comb foundation. Yet I do not regret this loss, for from the experience gained early in May I discovered that American foul brood existed in two colonies, and I asked the State Entomologist to assist me in going through my apiary of about 30 colonies at that time. He kindly did so, and we found seven pronounced cases of American foul brood. Having read of the different methods of treatment which really ended with the same results, also having before me the printed instructions of the State Entomologist I proceeded to make a cleaning.

As mathematics is my long suit, and not having the desire for any more labor than was necessary, I commenced to figure just the best, surest, and safest way to exterminate the disease. As all authorities on this disease seem to agree upon getting the bees out of the diseased hive and into a new clean one with starters only in the frames, I decided that there ought to be a better, quicker, and more sanitary way than to shake them as is advised by most authorities. I decided to try the driven method, instead of the "shook" method, which, in the end, amounts to the same, only the driven method is quicker, sanitary, and safer.

Here it is: Place the prepared hive with the starters in the frames on top of the diseased hive after removing the top board quietly, and puff considerable smoke in the hive entrance of the diseased colony. At the same time use a little hammer, and the bees are so frightened that they make a rush for the top of the hive without stopping to gorge themselves with the infected honey. After the first attack, I use less smoke, but keep pretty busy with the hammer. Within ten minutes every bee that can crawl is in the upper hive.

Remove the diseased hive to a new stand and place the driven colony on the old stand; and after 24 hours give the bees either full sheets of wired foundation or empty combs, and the work is complete. If there is sealed brood enough to warrant, one should leave enough bees in the diseased hive to keep the unhatched brood warm. At the end of 21 days repeat the drive; and by giving them a laying queen this second or after-drive will build up into a good strong colony by fall.

Under the treatment described above, the cure has been perfect; and from the seven diseased colonies I now have ten good ones. With this treatment, too, one does not expose any combs or honey to the robber; has no lifting, shaking, nor brushing of bees, and it is quickly over. I regret the loss of some honey and combs, but do not dread American foul brood any more.

Southport, Ind.

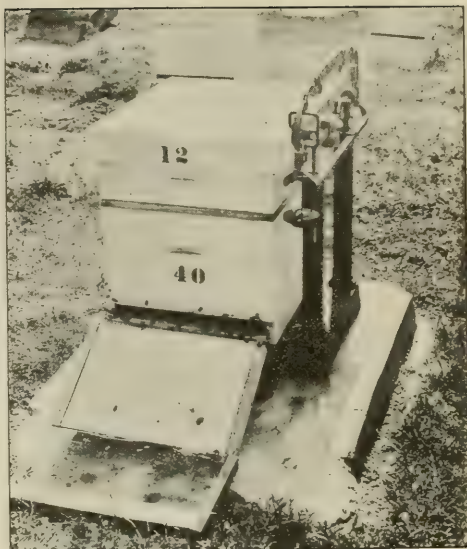
CURING BEE PARALYSIS BY ALLOWING THE COLONY TO REAR A NEW QUEEN

The Suspension of Brood-rearing Brings About the Cure

BY N. L. STAPLETON

I was very much interested in P. C. Chadwick's account, May 15, page 331, of his treatment of two paralytic colonies, and also in B. L. Fisher's account of the trouble he is having with his bees which I have just noticed, June 1, page 387. In my opinion there is no question but that Mr. Fisher's trouble is paralysis, and I think I can give Mr. Chadwick the secret of his success in the treatment he gave his diseased colonies.

I have never heard of any foul brood of any kind in Georgia; but bee paralysis is a constant source of trouble to all beekeepers in this section. Four years ago I introduced the first modern hives and the first Italian bees in this section of the State, and now have 95 colonies, consisting of both three-band and golden Italians. But before I started my apiary I used to notice among



Test hive on scales.

the farmers who used box hives, in practically every beeyard one or more colonies with a large number of dead bees in front, and disabled bees crawling around on the ground. The owner always explained that the bees had been robbing this colony, or that the web worms were killing it out. I still see the same thing over the country, and now know that the trouble is paralysis.

Soon after I began keeping bees, two of my strongest colonies developed this trouble, one of them being a colony which I had received by express together with a very fine queen, and I have had more or less of it in my yard every year until the present time. I read every thing I could find on the subject, and about all I found was summed up in the advice to requeen. I also wrote to J. J. Wilder, of Cordele, Ga., with whom I had been in college some years before, but he gave me the same advice. By experimenting I found that requeening would usually remedy the trouble; but twice it did not do so, and I had to requeen the second time in each of these cases in order to effect a cure. Here I desire to note two observations: The colonies affected have nearly always been my strongest ones, usually containing expensive queens which I hated to kill, and so far I have seen but two colonies recover without treatment; and these two which will be referred to had what amounted to the same thing—a suspension of brood-rearing.

The second spring after I entered the bee business I began experimenting, with a view to finding a simple treatment, and

have been at it ever since, but did not solve the problem until this season. Some writers have suggested that the old honey stored in the hive, and others that the old pollen in the hive, is responsible for the trouble, and that, so soon as new pollen and nectar are brought in, the trouble would abate. My observation does not sustain either of these theories. I have several times removed from the diseased colony all the honey and pollen in the hive, leaving only the center combs with the brood, and this, too, when a good supply of both nectar and pollen was being brought in. At other times I have fed sugar syrup. In no case has there been any perceptible improvement in the condition of the colony. Last season I attempted to introduce to a diseased colony a queen which I had received through the mail. The bees refused to accept her; and when I next opened the hive for the purpose of examination I found a lot of fine queen-cells. As a matter of experiment I took a couple of these cells and gave them to nuclei from healthy colonies, besides leaving one for the mother colony. They all mated; and not only did the mother colony recover completely, but there was never any trace of disease in the nuclei.

During the past winter, which was unusually warm, I had five colonies badly affected. In January I happened to open one of these and found a number of supersedure cells. This was so unusual that I watched this colony carefully. A queen hatched out in due time and remained in the hive for ten days or more; but a cold spell coming on, she eventually disappeared without ever laying. Soon afterward, when I went to introduce a queen to this colony, I noticed that it was entirely cured of paralysis, and I incidentally noticed that all brood had hatched out.

About the first of March we had a pretty fair honey-flow here from tupelo and other sources, and another of the diseased colonies swarmed, which was something else unusual, as I had never before seen a diseased colony build up sufficiently to cast a swarm, even in the best honey-flows. I attribute this instance to the warm winter. I hived the swarm and moved it to a new location, and in due course of time found a laying queen in the mother colony. Some three or four weeks later I was surprised to notice that there was no indication of paralysis in either the mother colony or the swarm. In trying to account for this, and in recalling some of the experimenting that I had done in the past, I came to the conclusion that the only thing that could account for such a prompt cure was the suspension of brood-rearing which had occur-

red in both the mother colony and the swarm.

As a matter of further experiment I then went to each of the three remaining diseased colonies, and, removing the queens, I introduced each of them to healthy colonies and allowed the diseased colonies to rear their own queens. The result was surprising in that the recovery of the diseased colonies was so prompt in all three cases. The old queens which were removed have had time to hatch out and mature a large amount of brood, and there is no indication of infection in any of the colonies to which they were given, which shows that the queens were not responsible for the trouble.

It is true that my investigations are not conclusive; but I am so sure that my conclusions are correct that I give them to the other members of the fraternity, especially those in the South, with request that they verify the same. I do not know just how long the colony should be without a laying queen in order to effect a cure, but apparently until all brood has been sealed, and the nurse bees have had time to get rid of all the food they have been preparing for the brood.

As above stated, in two cases in the past where I introduced queens received through the mails a cure was not effected until I again changed queens; and I attribute this to the fact that these queens must have begun laying before all of the old brood had been sealed. In no case where I have introduced a cell or allowed the colony to rear its own queen has it failed to effect a cure promptly.

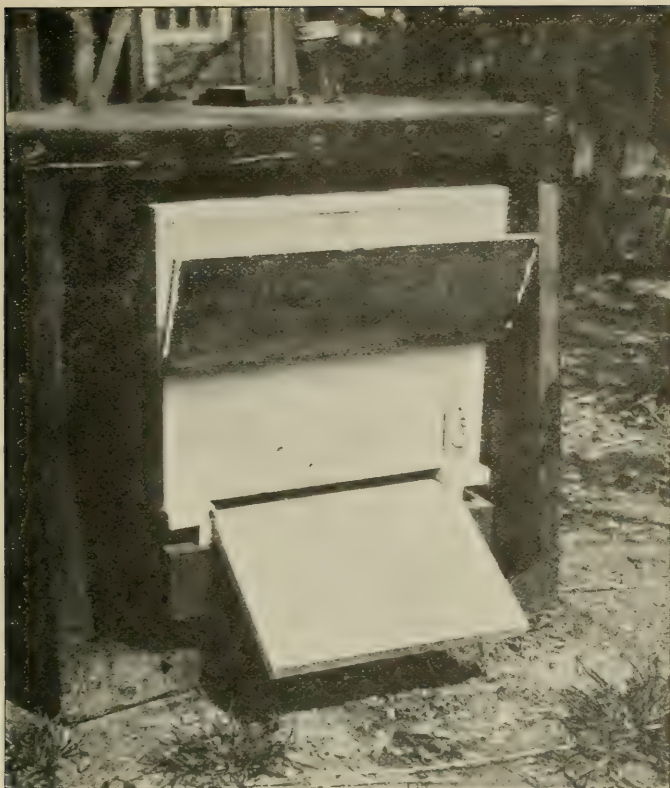
I desire to say further that my observation is that it is not at all necessary to isolate the diseased colonies nor to remove them to a separate yard. In no case have I had colonies by the side of the affected colonies to become diseased. I have had my yard entirely well for two or three months at a time, as it is at present. I have never had the trouble occur the second time in the same colony, and have given combs of honey and pollen from diseased colonies to healthy colonies without ever having the healthy colony become infected.

Colquitt, Ga.

HIVES PROTECTED IN WINTER BY BUILDING PAPER TACKED TO A FRAMEWORK

BY M. J. KAUFMANN

I herewith enclose a photograph showing a hive and covering. The outside cover is a light framework covered with building paper. I tore the front out to show better the hive inside. During the winter there is just



A light framework covered with building paper as a protection against the wind in winter. The paper is torn away in front to show the hive inside.

a small opening in the front, an inch or two below the main entrance. This gives the bees plenty of ventilation and keeps out the sunlight. The principal object of the outer cover is to break any winds (even chaff hives occasionally will leak wind), and I find it saves the hive considerably against snow and dampness. Of course, a man running two or three hundred hives would not find this advantageous; but for the small beekeeper the slight trouble that he would have making the framework covering it would more than compensate him for the protection given the hives.

New York.

POSITION OF THE CLUSTER OF BEES WINTERED OUTDOORS

BY GEORGE SHIBER

In Dr. Miller's fifth Straw, p. 108, Feb. 15, he says: "While empty combs would be found below the cluster, the bees would never allow honey below the cluster." And, again, "But reasoning is not always safe." Even so. In the footnote, the editor says,

"We feel very sure we have had many cases like this where the combs of honey project below the cluster."

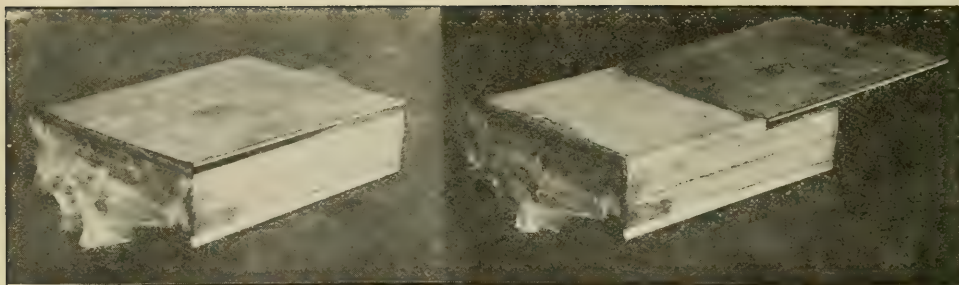
Mr. Editor, you have got the decision. In winter, are not bees always right up to the top of the frames? and if a space is made above the frames and under the quilt, don't they always cover the top of the frames? I do not recall a case where they did not. I will tell you what I observed last February. The 19th and 20th of that month were very warm, and the bees flew as in summer, so I took the chance and opened many colonies. I found hive after hive with honey in the bottom part of the combs—not only one or two, but a lot of them. In case of a great many I did not take out a frame if I could see the combs on the outside of the cluster with

sealed honey and the ends of the middle combs sealed.

One colony I opened and took out every comb. It had one of my choice queens. It was a magnificent stand of bees. Well, the four center combs had empty cells in the upper half, and sealed honey below. The two outside combs were still sealed solid—had not been touched. Yes, honey was below the cluster, for the bees were at the top of the frames. I opened a number of others that were in the same condition.

Yes, Dr. Miller, while I have a pretty warm feeling for you I shall have to take the editor's side of the argument, for you see I saw it, and it is still fresh in my mind. I have wintered a good many colonies in the cellar; and, so far as I have observed, your statement will hold true in regard to that mode of wintering—i. e., that honey will never be found below the cluster, but it will be found below the cluster when bees are wintered out of doors. Or let me say it this way—I saw a number of such cases last February.

Randolph, N. Y.



Comb honey protected by a tin slide on each side of the section.

TIN COVERS FOR SENDING HONEY BY PARCEL POST

BY W. J. LEWIS

As an experiment we are sending you under separate cover, by parcel post, two sections of honey enclosed in our tin covers. One of these sections, among forty others, was exhibited at the Gulf States Fair at Mobile last fall, and was from there taken to Chicago and exhibited at the land show. It was then sent back to Citronelle, and, with about twenty others, inclosed with the tins, was put in a trunk with other baggage and sent to this city. If it reaches you in good condition I think it will be a fair test of our tin covers for supporting a section of honey while being handled. The tins can be put on or removed more easily by clamping them sidewise over the section than to attempt to slide on endwise.

This honey was produced in an improved Danzenbaker hive. We use a galvanized iron strip to rest the frames on instead of the wide cleats, for both supers and brood-chamber. We think this makes an ideal hive, as there is an air-shaft at each end of the hive, also a highway or passage for the bees to go and come. We also swing the extracting-frames and section-holders from the center. Our special frames, both brood and extracting, have seven-eighths top and bottom bars. The section-holders have the same width of top and bottom bars so as to cover the sections entirely. We have used the new frame and holder for two years.

We shall produce about 3000 sections at our Alabama place this year. Our apiary in this city consists of about sixty colonies; the bee-yard is illuminated with electric lights, and the hives stand on cement stands. We produce extracted here.

One correspondent tells how the price of honey can be raised six or eight cents per pound by advertising. Of this we feel certain. We get from six to ten cents more per section for our honey than the regular

price. Grocers will not handle other honey after once handling our product with its tin covers. Fancy honey ought to bring as much as fancy butter. We once thought the producers would some time get together, and, by advertising the merits and uses of honey, establish a better price; but we have about lost hope. Beekeepers are too widely separated for a concerted movement, and in the ranks are too many scientists and old fogies for united action.

St. Louis, Mo.

[The honey arrived in rather bad condition, the combs being cracked. However, we photographed one of the sections to show the protecting slide, an engraving of which appears herewith.—Ed.]

SHAKING COMBS OF A DISEASED COLONY

Reducing a Foul-broody Colony to a Few Combs which can be Shaken Quickly when the Treatment is Given

BY R. F. HOLTERMANN

It appears to me, unless my memory fails me, that in the many methods given for the treatment for foul brood (and if any do give it), little emphasis has been given to the best method of shaking bees from foul-broody colonies.

The object in shaking bees twice is to minimize the possibility that, at the close of the treatment, the bees may have any disease germs in the hive. The line of reasoning is that the bees are liable to fill their honey-sacs the first time they are shaken; that some diseased honey may be in the bees after the first cells in comb have been produced, and that they may have stored this honey in the comb where it is likely it will be fed to brood. Therefore another shake is given. Now, it might so happen that the operation may be repeated by the bees the second time; but the ratio of risk is reduced just to the extent that the amount

of diseased honey in the hive has been reduced.

Now, I am not going to pose as an expert in foul-brood matters, for I do not believe I ever had more than five colonies with the disease at one time in an apiary. I think I have had that; but I am very much afraid of it, and extremely anxious not to become any more familiar with it from a practical standpoint. In order not to be a menace to others, as well as not to spread it in my own apiary, I have read all that I thought worth reading about it, and have thought a good deal upon the subject.

The danger comes from the infected honey the bees take up and carry in their honey-sacs. Why, then, not do all one can to prevent them from getting any of this honey? Some combs, owing to propolis, and on account of the way they are built into the frames, and even attached to the sides of the hives, are so difficult to remove that the bees might almost get full honey-sacs before they are separated from their stores. Almost any hive, however, can be made more convenient for action. Where the colony does not occupy all the combs in the hive, all surplus combs can be removed—in fact, all that have no brood in them, or perhaps even more. The two outside combs can in any case be removed, and then when the bees do not expect it the beekeeper can go there with what help he can muster, smoke the bees if at all cross, or give little or no smoke if they are gentle (but better smoke the bees than work slowly). The combs can be seized quickly, the bees shaken off by every operator, and in that way the danger of transmission of the disease be overcome because the bees get little or no chance to fill themselves.

I am still a strong advocate of brimstoning the bees if there are only one or two diseased in a large apiary. This is not necessary; but I always feel that it is a safe way, and I am no stranger to that method of treatment, and under such circumstances I am in favor of burning the comb.

Brantford, Canada.

BEEKEEPING ON HILLCREST FRUIT FARM

BY S. H. BURTON

As bees are considered a necessary adjunct to a fruit-farm for the proper pollination of bloom, my first investment as soon as my berry plants and trees began to bloom was five colonies of bees. The bees were in eight-frame dovetailed hives, and were knocked down to me at a public sale at \$2.00 per stand.

They were purchased in October; and as

the honey-flow was practically over I at once moved them to my farm and prepared them for winter by removing the sections and filling the supers with leaves and chaff, first spreading a cloth over the brood-frames to prevent the packing from going down between the frames into the brood-chamber.

One colony was lost on account of being queenless. The other four wintered finely in an open shed with outside packing. These four colonies have never swarmed, although I have owned them for three years. However, this little experience gave me the "bee fever," and I have since built up my apiary by purchase, swarms, and increase, till now I have 24 colonies.

Up to July 1 the honey crop was immense, some colonies filling a super in ten days. The extended drouth for the past two months has shut off all sources of supply, and it now looks as though I might have to feed in order to winter through safely. Buckwheat was sown the middle of July, but it has been so dry that a great deal of the seed has never sprouted. However, a beeman is hard to down, so I still live in hopes of better luck ahead.

Having read about requeening and introducing, I decided to try my hand at introducing new blood into our apiary, and also see what I could do in the way of making artificial increase. Two queens were ordered, and the directions for introducing to a queenless colony were followed. The cage was slipped down between the frames, and was left 24 hours. Upon examination it was found that the bees had not released the queen, so she was turned loose, and ran down between the frames. The next day an inspection was made, and no queen was to be found.

With the second queen I had better success. Artificial increase was tried here; and instead of introducing the queen to the bees I did just the reverse—introduced the bees to the queen. A frame of honey was removed from a hive, and only about three dozen bees with it. This was placed in an empty hive with the rest of the frames containing full sheets of foundation. The entrance was closed, and left for two days. Then the cover was removed; and my queen, whose wings had been clipped, released. I then went to a strong colony having a full super of honey, and removed the super, bees and all, and placed on my hive containing the new queen. I left the entrance closed until the next morning. In 24 hours after opening the entrance those bees were carrying in pollen, and every thing was as orderly as could be. This, too, was during a drouth, and no robbing.

Washington, Ind.



A. P. Haberecht and family in their apiary in New South Wales, Australia.

BEEKEEPING IN NEW SOUTH WALES

BY A. P. HABERECHT

The conditions in the United States are altogether different from ours in the southern Revernian of New South Wales. Our average rainfall is 22 inches per annum. The coldest morning I can remember was 26 degrees F., and the warmest day 118 in the shade. Our produce is chiefly wheat and wool.

I am a builder by trade, and keep a few bees as a hobby as well as for profit. I have at present 70 colonies of bees, a few golden Italians, a few blacks, but mostly hybrids. The golden Italians I procured from H. L. Jones, Queensland. The queens which I raise myself go back in color every year; but as for honey-gatherers there seems to be no difference.

I am sending a picture of my apiary and honey-eaters. I have most of my bees in ten-frame Langstroth hives from one to three stories. I sell all my honey (extracted) in 60-lb. cans at the apiary. There is no sale for comb honey. I keep only one hive going with sections for my own use. I have exhibited extracted honey for six years, and have not yet been beaten. My locality is all right for quality, but no good for quantity. The best average I had for one season was 120 lbs. per colony; but the average for the last ten years would be about 30 lbs. per colony. I always leave about 30 lbs. of fall honey per colony, which has always been sufficient to see the bees through the winter, and to rear their brood.

The winter here lasts about three months (May, June, July); but on any calm and sunny day, even in the midst of winter, the bees will fly. About the first of September they will begin to gather pollen from cape-

weed, and swarm about the middle of October. Our honey is gathered chiefly from eucalyptus trees, which begin to bloom in September. Our locality has three species—the first one and the best, the yellow box (*Eucalyptus melliodora* A. Cum), then the red gum (*Eucalyptus rostrata* Schlecht), and, lastly, the gray box (*Eucalyptus hemiphylora*), which gives us our fall honey, and is dark in color, and

granulates quickly. The yellow box and red gum honey seldom granulate. Some of it never granulates. I have had samples since 1898, and they are just as I put them aside.

So far I have had only one case of foul brood. I at once sulphured the bees and burned the whole of the brood-nest with the bees, and I have never had any since. I kept bees in box hives about 20 years ago, on the Wimmera River, in Victoria, and lost 53 colonies out of 57 in a few weeks with foul brood.

In 1902, if I remember rightly, I lost in this locality 45 colonies out of 53 from what was called the "disappearing trick." Since that time I have not seen it.

Some seasons I have a good deal of spring dwindling, and sometimes a little paralysis; but the latter is not contagious here.

If any of your readers would care to exchange samples of honey I should be pleased to do so. I read some time ago that our eucalyptus trees are grown in some parts of America. I am sure they should flourish on your soils. Red-gum plantations should prove very profitable in America in the long run.

With reference to railway freight on honey in New South Wales, I interviewed the station master here, and he tells me he knows nothing about changing from B to A rate. His book says honey goes as B rate, minimum on ton (no difference in freight on comb or extracted honey); 50 miles, 10 shillings per ton; 100 miles, 18-10; 200 miles, £1-13-5; 300 miles, £2-3-10; 500 miles, £2-16-4; and 600 miles, £3-2-7.

NUMBERING OF HIVES.

The numbering of hives on their stands seems ridiculous. In the first place, one would want to have a number on every side

of the hive or else he would have to go to the side of the hive where the number is.

My arrangement is this: Ten hives in a row, always counting from left to right; and ten rows in each section (that is, 100 hives). I certainly have every hive numbered in my book; but in the apiary the position gives me the number at a glance, wherever I may be at the time. For example, a swarm is issuing from a hive, say the fifth in the fifth row, which must be 45; the brick on top of the hives gives me all the particulars I want as to the condition of the queen and hive, so I know every thing in a few seconds without moving one yard. I have had this arrangement ever since I began using frame hives. I have my hives on four pegs about 12 inches from the ground, and have them placed 10 feet by 20 feet, and a row of fruit-trees between, as you will see by the post card.

Henty, N. S. W., Australia.

IS SUGAR A WHOLESOME FOOD FOR BEES?

BY J. A. HEBERLE, B. S.

Practical beekeepers have always sounded a note of caution against feeding too much sugar. Of course the warning was not against feeding sugar for winter stores in a poor honey year, nor is there any harm in feeding a few pounds of sugar to each colony. I feed every year in September about four pounds of sugar to each colony at an apiary where the bees gather a little heather honey, and my bees always winter well.

The sugar is usually boiled. This was formerly done because ultramarine was used to make sugar appear whiter. By boiling, the ultramarine came on top and was skimmed off. I have no convenient place to boil the sugar. I use cold water to make the syrup—equal parts by measure of well-refined crystallized sugar and water. If it is late in the season, then a more concentrated syrup is used, as much as 7 parts of sugar to 4 parts of water by volume to this syrup. Hot water is needed to facilitate the solution.

Honey from honey-dew is not suitable for winter stores. Some of this capped honey should be taken out, and sufficient sugar fed or suitable honey given so the bees, while compelled to remain in the hive, can feed on the good honey or sugar. Honey from honey-dew invariably gives dysentery, and very often such a colony in our long severe winters is lost, or so weakened that it is scarcely worth the trouble. I recommend in poor seasons to take in early fall some capped honey from each

colony. Feed sugar instead, and give the capped honey in the spring as needed.

In our rough spring weather it is dangerous to supply feed in fluid form too early in spring. It entices the bees to fly out for water and pollen, and a large per cent never reach home again. If the lacking food is supplied with capped honey-combs the bees are not so excited nor so much stimulated, and at the beginning of the honey-flow are usually more populous, and consequently bring more surplus. Colonies not stimulated seem to conserve their energies, and use them later to better advantage. Stimulating in the latter part of spring when the inconstant weather has lost part of its danger may be advantageous. Great care, however, must always be exercised when stimulative feeding in spring is practiced. The warning against sugar feeding was for those beekeepers who take all the honey they can from the bees and feed sugar. These mercenary beekeepers think they are profiting by this robbing system, but they are mistaken. They have considerable work, and but little gain. They do harm to their bees and lessen the chance for a good crop of honey next season, because the colonies so robbed do not prosper as well in spring on the sugar, and can not make use of the early honey-flow to the same advantage as the more populous colonies that had plenty of honey during brood-rearing time.

Dr. U. Kramer, of Zurich, wrote an interesting article on "The Physiological Effect of Sugar-feeding." By analysis it was determined that sugar honey (*i. e.*, sugar fed to the bees and extracted) contained practically as much nitrogen as honey. Of course, the ethereal oils and other subtle substances peculiar to honey are not present, and the inversion is not complete. Sugar honey from the uncapped cells showed 0.28 per cent of nitrogen; the capped sugar honey showed 0.36 per cent of nitrogen. Sugar is a hydro-carbon, and contains no nitrogen. Dr. Kramer deduces, therefore, that the bees supply albumen from their body while inverting the sugar. If that is so, there can be no question but that feeding great quantities of sugar must be harmful to the bees. It must weaken their vitality and make them more susceptible to disease.

HOW LONGEVITY IS INFLUENCED.

To lessen the vitality means to shorten their life, while longevity of the bee is the secret of success in beekeeping. It should be the ideal of the beekeeper to produce by careful selection bees that have *great vitality*. Such bees resist diseases better, and bring the most surplus. During spring the

brood-nest can be increased only in proportion to the bees present in the colony. If the bees of a colony during the busy season live seven weeks instead of six, that colony will become populous providing the queen lays an equal number of eggs sooner than the colony whose bees live only six weeks, and would bring in much more surplus. By selection bees have been produced, not only of splendid color, but also of great fertility. Great fertility alone does not mean great surplus unless the offspring have great vitality.

Longevity is a consummation devoutly to be wished. If the beekeepers, especially the breeders, strive to produce queens whose progeny are especially hardy they will succeed, just as they have succeeded with fine color and great fertility. The trouble is to know the queen whose progeny is especially hardy. If beekeepers once decide to pay especial attention to longevity they will find ways that will permit them approximately to judge of this desirable quality. If a colony has a very fertile queen, and is populous, yet does not bring in surplus correspondingly, one may infer that the fielders are not in the right proportion to the nurses. Unless there are other conditions that account for the deficiency, that would mean that the fielders do not live long enough. On account of the fertility of the queen, the colony is always populous, consumes great quantities of honey to feed the larvæ, but, having fewer fielders than a colony whose queen is equally prolific, but whose descendants live longer, is short in surplus.

By comparison of two colonies of about equally fertile queens but great difference in vitality, the colony of greater vitality would be more populous mornings and evenings. A colony that does not seem very populous during the day, and the fertility of the queen only medium, but whose surplus compares favorably with the best, that will be a colony whose bees probably have that longevity that the up-to-date beekeeper should wish. We know in a general way that bees during the busy season live about six weeks, while bees hatched in August or September live about eight months.

To accomplish much by selection in a short time, it is essential to select carefully the colonies from which queens are reared. Equal attention should be paid to the selection of colonies whose drones are to make the queens. A choice colony, only the best is good enough, should be set up in a place far away from any apiary and from the woods where wild bees are—say one mile (a greater distance would be preferable), and the queens to be mated should be

brought there. The colony should have opportunity to rear a great number of drones; and if the honey-flow is meager, liquid honey mixed with an equal volume of water should be fed for the purpose of stimulation. Under such conditions a high percentage of queens would be mated pure, and transmit to their progeny with much greater certainty the good qualities of both parents. We may often note that some colonies are much quicker in detecting distant sources of nectar. This is also a quality that deserves the special attention of the breeder.

I have noticed that some beekeepers in America advise feeding only cane sugar, claiming that beet sugar is not wholesome for bees. I think this warning is not justified. All sugar we use on the table is cane sugar—that is its proper chemical name, regardless of its derivation—and is in all cases just the same, be it from the sugar-beet, sorghum, sugar-cane, or the maple tree. In good or *well-refined* sugar there is barely enough of other substances so that its derivation may be determined by the most delicate and refined methods of modern science; but the ordinary mortal can find no difference.

In Germany we use sugar from the sugar-beet exclusively. I have never heard of a case where any undesirable effects had been noticed by feeding to bees well-refined sugar from the sugar-beet. The tendency of degeneration of the bees through feeding large quantities of sugar will be the same whether the sugar is derived from the sugar-beet or the sugar-cane. Alcohol is the same, whether it be from corn, barley, or potatoes. This article applies especially to conditions prevailing here in Bavaria.

Markt Oberdorf, Bavaria, Germany.

THE "MOVIES" AND BEEKEEPING

BY LOUIS SCHOLL

Continued from page 709.

for advertising the beekeepers' products carried out.

Of course, I do not mean to say that such a film should be straight-out advertising in its make-up, but that the scenes would be interesting moving-picture-show stuff, and so interesting that they will attract attention. Then, indirectly, the advertising feature of these pictures should come out of strong suggestions incorporated in various ways throughout the film. The titles to the different scenes should be suggestive as well as explanatory, and the pictures should be such as to create the desire that we are after. For instance, if the matter of honey can be kept uppermost in the minds of the

spectators by showing the honey in its various shapes and forms, perhaps best in the combs as they are handled from the hive, etc., honey handled in the store, a person purchasing or admiring a package of the clear liquid honey, or the pure white comb honey, and shelves of honey in nice glass, as well as exhibits at fairs, with large pyramids of honey in glass, or great piles of it in the comb, would help out. But better still, it seems to me, would be such pictures as actually show the honey being used and eaten at the table, with nice brown biscuit or hot cakes, or somebody giving nice bits of white comb honey to some rosy-cheeked children in place of pieces of candy. Honey could be displayed in many other interesting as well as suggestive ways.

It is true that not every detail need actually be shown in a picture film to place before the spectators a whole story about honey and the value of good honey. Just as one goes to see a great play, either in a theater or a reproduction of it in a moving-picture show, because he has read a book of the story of the play, so a complete picture story of honey production and honey for food could be given which would create, at the same time, a demand for this product.

FIELD NOTES FROM MINNESOTA

BY J. ALF. HOLMBERG
Apiary Inspector

The results of the treatment of bee diseases throughout the State have been very gratifying this year, and it looks to me now as though we were the masters of the situation so far as a cure is concerned. I am pleased to say that I have not been able to find any European foul brood this season, and we can keep it so if we can have the co-operation of every beekeeper. I have found several places that were stricken with sac brood. The Bureau of Entomology at Washington does not advise treating this disease; but where there are not too many colonies I think it a good thing. In one instance I treated a colony where sac brood existed, and it produced 75 lbs. of honey the same season.

So much has been said and written on foul brood that I hardly deem it worth while to enter into a description of this disease in this writing; I shall, however, endeavor to state in my annual report every thing of importance regarding this disease.

Allow me to say that I will advise that no chances be taken at all if one desires the quickest way out. This seems to be the greatest difficulty among so many beekeepers that have affected apiaries, and if they

would just try to keep every thing clean after treating, it would mean more to the bee industry than I could mention at this time. On one occasion where I inspected an apiary I found some hives with American foul brood. The owner helping me in this work wore gloves. When the work was completed in this yard we were to inspect another yard of his close by. We went there; and if I had not stopped him he would have used the same gloves and tools without disinfecting them. I afterward found out that he had done this before, and, of course, had spread the disease himself. This, of course, was carelessness on his part; and so many seem to think this is such a small matter that it doesn't count: but when a person is dealing with a contagious disease he can not be too careful.

In hiving stray swarms, unless one is positive that they are from healthy colonies, I advise putting on empty frames or starters. Later, these can be replaced with full sheets of foundation. By doing this the bees will use the honey they had with them for the secretion of wax.

St. Paul, Minn.

Screen for Keeping Mice from a Hive

I had a couple of hives into which mice had found their way. They did a whole lot of damage to the bees before I could find out what the trouble was. Whenever one sees at the entrance an unusual amount of bitten-up bees and larger pieces of comb, wax, or wax mixed with packings, he may surely make up his mind that there is something wrong inside the hive.

If the weather permits, and the bees are flying, open the hive, and a mouse or something else will be found in the hive. Unless one is careful to catch the mouse it will hide between the frames. If the weather is too cold, and the bees are not flying, one may catch the mouse with a small trap on the outside of the entrance.

To avoid all this trouble, the very best thing I have found is to use a strip of screen (quarter-inch mesh), and fit that in front of the entrance. That will not interfere with the bees going out and in, and will keep out the mice. I get pieces of screen (scrap) at a carpenter's shop or hardware store. I cut them about 3 inches wide, and the length of the entrance of the hive, and bend them at a right angle so they look like a small trough. Then I lay them in front of the entrance. The one side will lie down flat on the bottom-board, and the other side stands up-right against the entrance.

The Dalles, Ore., Jan. 11. JOHN PASHEK.

Another Successful Introduction by the Smoke Plan

I want to tell of my success in smoking in queens. I have used the plan advocated by A. C. Miller, with good success. I had two colonies that were queenless for two months. I tried to introduce queens by the cage method but failed. Then I ordered two more queens, and this time I followed Mr. Miller's plan, and I succeeded. The next day after introducing the queens I found they were laying. It is certainly a time-saving method, and I prefer it to the cage plan.

Sugarcreek, Ohio., Aug. 30. D. W. MILLER.

Heads of Grain from Different Fields

Bees Essential to Fruit-growing; How many Colonies to a Given Number of Trees

We are novices as yet about bees and their care. We know, however, that the bee is an important factor in orchards, and because of such we contemplate making a very important incidental department of bees in our industry at Grand Isle, Vt. We can buy plenty of bees about here. I suppose they are common bees. Some say "black bees." Our notion is to start with enough swarms next spring to serve our 15 acres of old large trees and to let them multiply as fast as they will in contemplation of the 10,000 young trees set in 1912-13. We will have about 150 acres of orchard, and our present notion is that a sufficient number of bees should be stationed near every section of the orchard so that in case of cold or rainy weather they need not work far. I don't know the number of colonies necessary for 10,000 young apple, plum, pear, and cherry trees, nor do I know how many swarms will secure their honey from a given center or quarters; or in other words, the territory or zone necessary per 100 colonies of bees at other times than blossoming time of fruit trees.

EASTERN FRUIT AND NUT ORCHARD CO.,
CLARENCE J. FERGUSON, Manager.

Burlington, Vt., Sept. 9.

[We refer you to GLEANINGS, August 15th issue, p. 562. You will see there that the Repp Bros., who are large growers of fruit, especially apples, regard the presence of bees as very important. We have one large orchard about ten miles north of us, 40 acres, and the grower there requested us to put upon the place some fifty or sixty colonies of bees. He secured a very fine crop of 16,000 bushels of apples, and when we saw him a few days ago, he said he attributed a good deal of this to the presence of large numbers of bees. He stated that he would want something like a hundred colonies of bees next year, as he expected to have one or two more orchards in the vicinity. We also refer you to GLEANINGS for July 15, p. 478, for a remarkable testimony on the value of bees as pollinators. See also our booklet, "Bees and Fruit." You will find much more matter on this same subject in the A B C and X Y Z of Bee Culture under head of Fruit Blossoms, and also under Pollen.]

Just how many bees may be necessary for a given number of trees, we are not able to give you definite information; but our neighbor ten miles north of us thought that he would need about forty or fifty colonies for 40 acres of apple trees. Your plan is correct, to start a small apiary to take care of your 15 acres of old trees, and then increase the number gradually up to take care of the ten thousand young trees that you set in 1912.

You will find that the bee business is a profitable side line in connection with your fruit-growing because you will be the busiest with your bees just at a time when the work with the fruit trees will be at the least. During the cold weather and early spring the trees will need to be pruned and sprayed, and at that time the bees require very little attention. When the main honey crop comes on, say in the months of July and August, or rather the months of June and July, you will not need to be very busy with your trees, and consequently can give your whole attention to the bees. To our notion a combination of bees and fruit-growing is most excellent.

In putting bees in an orchard, it is desirable to scatter them, a few colonies here and a few colonies there. The idea is to get the bees arranged so they do not have to fly very far on cool or rainy days. Bees will go a short distance, and when they strike the cold air will go back to their hives, and for that reason it is desirable to have the colonies pretty well

scattered throughout the orchard. This makes a great deal of travel for the apiarist between the hives, but at the same time you get a much better distribution of the work of the bees.—ED.]

How to Winter Three-frame Nuclei, and Carry Over a Surplus of Queens

Can you tell me of any method that is fairly reliable for wintering nuclei of two to three frames in the cellar?

Chaffee, N. Y., Sept. 18.

A. J. O'DELL.

[It will be perfectly practicable for you to winter three-frame nuclei in a cellar, providing you have the right conditions. The temperature must not go below 40 degrees nor much above 50. The bees will stand 60 degrees providing you have a large amount of ventilation. The cellar must be absolutely dark, and it should be reasonably dry. If the temperature hovers around about 38 and 40, 41 and 42, and is damp, you will probably lose a large part of the bees in these nucleus boxes. If, however, you can keep the temperature at about 45 to 50, with a dry atmosphere and a large amount of ventilation, without bringing in light, you will get fairly good results in wintering. Put these nuclei as close together as possible, to conserve heat. You will need to watch the temperature very carefully. It might be wise to put in the cellar a small drum stove, the smallest one you can. Connect it with a chimney; and when the temperature goes below 45, build a very little fire. This will change the air somewhat, and at the same time bring up the temperature and keep the bees quiet. If your cellar is such that it goes up to 60 degrees, and you can't hold it down, the bees will fly out on the cellar bottom and you will lose a large number of them, possibly all of them, in that way. The only thing to do is to ventilate, leave the cellar door open at night, and close it during the day. It is desirable, however, to have fresh air going into the cellar *all the time, if possible*. If, however, you can maintain a temperature of about 45 to 50 without very much variation, you will not need a great deal of ventilation, although we always think it advisable to have the cellar dry with plenty of air if possible. If you could have an arrangement whereby you could put the bees in a room by themselves, with an opening that will communicate with one or two other rooms under the building, it will make the ventilation very much better. It is not possible to winter a large number of bees in a small room unless there is a large amount of ventilation. We can not emphasize that point too strongly.—ED.]

Does a Taste for Honey Have to be Acquired?

Mr. Root:—In your issue for Sept. 15, page 639, you have a short article headed "Honey a Concentrated Food," etc. On page 637 is an article by Doolittle, who says little honey would be eaten if it were not for its flavor, as the same amount of nutriment could be more cheaply obtained by buying sugar and making a syrup. I believe the taste for honey has to be acquired; and if Doolittle is correct, sugar syrup or a good maple-sugar syrup is fully as desirable, and far less trouble.

C. V. S. REMINGTON.

Fall River, Mass., Sept. 17.

[We can not quite agree with you that a taste for honey has to be acquired. If that were a fact, there would be very little honey consumed. This is true, however: Flavors that we enjoyed in childhood we continue to enjoy during our lifetime. We have noticed this, that persons who have been brought up in York State, who are familiar with the flavor of buckwheat honey, usually like it, even after they have come up to middle life and past. Those who

have been brought up in the one or two localities where maple syrup is produced are very fond of that flavor because they were used to it in childhood. Those who are accustomed to the flavor of clover honey, of basswood honey, or of alfalfa, continue to like those flavors. A really good table honey, like clover, basswood, or alfalfa, or even mountain sage, will create its own demand. In other words, the consuming public does not have to be educated to like them. It is a case of love at first sight.—Ed.]

Should Foundation in Sections be Placed with the Parallel Sides of the Cells Horizontal or Vertical?

I should like to make a few remarks in regard to the cover picture of the July 1st issue. There is a fault in all foundation that is made for oblong or deep sections which should be remedied. It should hang from the top of the section the way it comes from the mill, not crosswise. Notice the waves on every section. There would be none of these if foundation were hung the other way. There would also be less sag.

Then, too, foundation would not drop so easily when hauled over the road. But the most important point is that the honey has a much nicer appearance. Just compare two sections, one of each way, and see. Who put Nos. 10, 12, 13, 15, and 16 upside down when they took the picture? Notice the reverse position of the curves.

I have used 800 supers with wire fences and bee-way sections for three seasons, and the per cent of burr-combs is small.

East Syracuse, N. Y., Sept. 20. F. W. LESSER.

[Some years ago we made a series of experiments with the comb foundation in sections, placed both ways—that is, a part of the sections contained starters in which two parallel sides of the cells were vertical and the rest of the sections contained foundation having two parallel sides horizontal. At the time, we could see very little difference in regard to the amount of sag. Furthermore, beekeepers disagree in their opinions in regard to the matter. Some cut their starters one way of the sheet, and others the other way. Before going further we should add at this point that natural comb is usually built with two parallel sides of the cell vertical, but occasionally the bees build the comb the other way.

It is practically impossible to make a foundation-mill with the cells cut in such a way that two parallel walls of the cell will be parallel to the long edge of the sheet as it runs through the mill. In other words, two parallel sides must be crosswise of the sheet as it runs through the mill—that is, parallel with the rolls of the mill. When making brood foundation it is customary to have the sheet of wax as wide as the brood-frame is deep, and then after running through the mill the wax is cut into lengths corresponding to the length of the brood-frames or a little less. With this manner of cutting, two parallel walls of the cells are vertical, corresponding to most natural-built comb. The super foundation, on the other hand, while run through the mill in the same way, is almost always cut just the opposite; that is, with two parallel sides of the cells horizontal. The reason for this is that it is more convenient to cut it in this way, although, of course, the beekeeper may cut it the other way if he prefers. The foundation in the sections shown in the cover picture of the July 1st issue happened to have been cut with two parallel sides vertical, as in case of brood foundation, whereas the customary plan is to have foundation cut the other way, which is in accordance with our correspondent's idea, if we understand him correctly. We formerly cut starters for oblong sections with two parallel sides vertical, the same as shown in the cover picture referred to; but something over a year ago we began cutting starters for the oblong sections the other way, just as in the case of square sections.

In this connection we should like to inquire wheth-

er any one else has done any experimenting along this line—that is, with foundation hanging both ways in sections. If so, we should like to hear the results. To be conclusive, the tests should be made under like circumstances and conditions so far as possible.

Our correspondent has an observing eye. The sections shown in the cover picture of the July 1st issue were piled up on the table. On account of the fact that they were not quite square a few of them had to be turned upside down to make the rows straight. This accounts for Nos. 10, 12, 13, 15, and 16 being upside down.

We are glad to have the good report of wire fences. Mr. Vernon Burt has secured some of the nicest comb honey this year that we have ever seen, with this same sort of equipment. Apparently the danger of bees attaching the combs to the wire is not as great as was first feared.—Ed.]

Should Supers Containing Brood be Removed in the Fall?

Last spring I purchased four colonies of bees. Colony No. 1 filled two supers with fine white-clover honey; but the last super they have filled with brood and young bees. Shall I leave the super on through the winter or not? If left on, what will be the result next spring? Do you advise using two brood-chambers for strong colonies? Colonies 2, 3, and 4 have the supers about half full of honey, and the brood chamber full of brood and honey. If I remove the supers, will the brood-chamber have enough supplies to carry the bees through the winter? or will it be best to leave the supers with honey in them on through the winter? I am using Langstroth ten frame hives. When the frames in the brood-chamber have honey and young bees, can the frames be put in an extractor and the honey be extracted without injury to the young brood, and then replace the frames to give more room for the queen to lay eggs?

Port Gibson, Miss., Sept. 8.

B. F. MINNIS.

[It would be questionable practice to attempt to remove this super containing brood, at this time as you will seriously weaken the colony and take away young bees which you will need next spring to keep up the strength of the colony. Under the circumstances the colony may be wintered in the story-and-a-half brood-chamber. While the weather is still fairly warm, perhaps it would be well to locate this super on the bottom-board and put the full-depth brood-chamber on top. Some time in the early spring, before the queen has started very much brood, you can remove this super from under the brood-chamber, thus getting the queen and bees on one set of brood-combs again.

We can hardly say from the description you give whether the brood-combs will contain enough honey. About the only way is to make an examination to see that all combs contain some honey; and the outside combs should be nearly solid with honey, perhaps two combs on each side. If there is not this much in the hive, feed a thick syrup in October, made by mixing two parts of granulated sugar to one of water until there are enough stores.

You can extract honey from combs containing sealed brood; but if there is any young unsealed brood this will all be thrown out with the honey. Therefore no attempt should be made to extract from combs containing unsealed brood.—Ed.]

Shipping Extracted Honey by Parcel Post

I have just read Dr. Moody's article, Sept. 15, p. 653, and should like to mention a few facts pertaining thereto. I am a clerk in the parcel-post department of the Cincinnati postoffice, also a beekeeper on a limited scale (having but 14 colonies), and am naturally in a position to observe a great many things as regards shipping the endless variety

of merchandise from practically every section of the country.

About two weeks ago two 10-lb. pails of extracted honey, which had been shipped from a small town in Kentucky to a party in this city, were received in our local office, in a deplorable condition. Each can, of the friction-top variety, was securely fastened in a sort of substantial wooden framework, but packed in such a way as to leave the rims of the cans extending beyond. In transit both had evidently received a blow or jar on the rim, causing same to spring just a trifle, but sufficient however to cause an almost invisible gap between the cover and the rim proper, resulting in about half the contents of the cans leaking out and completely daubing up every piece of mail in that particular sack. The public in general does not realize the hard jolts these mail-sacks receive in being transferred from one train to another, and in being loaded on and off the mail-wagons.

Only a few days ago several pounds of grapes packed in a flimsy pasteboard box were received in a state of "mush," the package having been flattened completely.

A 5-lb. can of fine country butter received the same treatment. When a 20-lb. piece of machinery comes in violent contact with a fragile article or package, something is going to happen.

In order to ship honey safely by parcel post it is necessary to enclose it in a stout wooden box with plenty of packing to take up the jar. Our parcel-post service is being constantly improved; it being still in its infancy, too much can not be expected at the start; but in due time the many problems will be worked out, and fragile articles shipped with perfect safety.

Cincinnati, Ohio, Sept. 18.

ALBIN PLATZ.

Why Swarms do not Carry Foul Brood

In a footnote in *Stray Straws*, p. 633, Sept. 15, you say that "it is generally understood that swarms do not carry foul brood." Please tell us why; or how it is possible for them to do otherwise than carry it when they leave the parent hive loaded with infected honey? I once had an infected colony swarm, and I hived them on full sheets of foundation; placed it on the old stand, put on a queen-excluder, and placed the partly filled super of extracting-combs from the parent colony over it. By so doing I gave them a place to store their loads of infected honey; and as nectar was coming in freely this honey was soon covered up; and later, when it was well capped, I removed it with an escape-board and extracted it and melted up the combs. The swarm has never shown any sign of foul brood since. I felt certain that I had saved them from it only by giving them empty combs above the excluder. I imagine my prime swarm would soon draw out the foundation sufficiently to store some of the honey brought with them. It seems to me like taking a big chance. We should like to know more about the subject from some of you fellows who probably are in a position to "put us right."

J. E. BATTRAM.

St. Thomas, Ont., Can., Sept. 22.

[Bees shaken from a diseased hive into a clean hive on frames of foundation will not carry the disease with them, as a rule. They will consume what honey they may have in their honey-sacs in drawing out of the foundation. However, to be doubly sure, Mr. McEvoy advised the use of two sets of foundation and a second shaking. This is a great deal of work, and it is very rare indeed that a second shaking is ever necessary; that is to say, one drawing-out of foundation seems to suffice for all practical purposes. This plan, which is so generally in use all over the United States and Canada, and to a great extent in Europe, is really founded on what is known as the Quinby treatment. He originally shook his bees from diseased hives into a clean

hive and caused them to build new combs. In that early day there was no such thing known as comb foundation; but the bees were obliged to build their own natural combs. This necessarily compelled them to use up any diseased honey that they might have in their sacs in the comb-building. If the Quinby treatment or the foundation plan of treatment is a success it would naturally follow that a swarm of bees leaving a diseased hive or diseased combs would not carry the disease with it, for it would be compelled to carry out automatically what is known as the Quinby treatment of cure; but if such a swarm of bees should go into a bee-tree that already had disease, or should occupy combs that had been infected by foul brood, of course the disease would appear again.—Ed.]

From 25 to 90 Colonies, and 2 Tons of Honey; Crops Sold at 25 Cts. per Pound

I had 55 colonies, spring count, and have increased 35, and have two tons of honey so far. This honey was gathered during parts of April and May this year. I thought I was amply prepared for the honey-flow, but used every thing in the way of hives and supers I had, and think I could have doubled my crop had I had supers sufficient. Nectar came from wild flowers mainly; but there was a two-acre patch of buckwheat half a mile away which makes the honey a light amber. I produce both bulk comb and extracted. I have just discovered that I am within only a few miles of thousands of acres of tupelo gum which is absolutely unoccupied by bees. I have a splendid market for all the honey I can produce, at 25 cts. per lb. for bulk comb and 20 cts. for extracted. So far I have visited only the office buildings and merchants at their places of business. Trade is all retail, 5 and 10 lb. lots; no house-to-house soliciting (at residences) so far. Nearly all deliveries are made on the spot at the time the order is taken. I don't have to deliver at a residence. My bees are all on a 25-ft. town lot on which is also a house and barn.

Nederland, Tex., June 19.

J. H. WEEKS.

Condition of Nuclei to which the Virgins were Introduced

I should like to know whether there were eggs and larvae present in colonies where those "old virgins" were introduced (editorial, Sept. 1, p. 594). Will you please let me know the condition existing in nuclei or colony at the time of introducing? how long queenless? any supersedures yet? any cells at time of introducing?

Corinne, Utah, Sept. 5. A. B. DICKINSON.

[Mr. Marchant replies as follows:—Ed.]

"I have tried introducing old virgins to colonies and nuclei in various circumstances, but I find that they will be more successfully accepted in colonies or nuclei that have been queenless not over 48 hours. If cells have been started and not removed, the results are not very satisfactory. If the cells are removed several hours before the virgins are run in, they are usually accepted all right. So far I have found no supersedure, and do not believe there will be any, for I am sure that, where the old virgins are run in, they will make as good queens as any, unless the virgins in question are very old indeed. Virgins five or six days old are all right. Some of my best queens were old virgins when introduced."

Good Season for Colorado

This was a good honey season here; about 12 cars, total crop. My crop was 200 cases comb, 8000 lbs. bulk comb, and 25,000 extracted; mostly sold except the last car of comb honey.

Rocky Ford, Colo., Sept. 11. BERT W. HOPPER.

Our Homes

A. I. Root

Pure religion and undefiled before our God and Father is this, to visit the fatherless and widows in their affliction, and to keep himself unspotted from the world.—JAMES 1:27.

I clip the following from the *Cleveland Plain Dealer*:

When one of the Atlantic liners docked at New York, June 16, it bore among other passengers in the steerage a woman and a little child, on their way to join the husband and father in America—the land where one always has enough to eat, and where there are no nobles and landlords to whom one must bow very low.

Father had saved enough for a passage for mother, the family was to be reunited and all would be well. The father was Constantine Michalski. The newcomers were Antonia, his wife, and three-year-old Maria, bound for Cleveland.

They arrived. Eight days later Constantine was killed in an accident. Mother and child were left penniless.

To-day, because the two have become public charges, they are to be placed on a New York train by immigration officials and will be deported.

I suppose our emigration laws are wise, and almost a necessity; but when carried out to the very letter in some cases they work hardship and trouble. This good woman and her three-year-old daughter in one brief hour had all her dreams of the New World shattered, and through no fault of their own so far as we know; and yet she is pushed away back across the ocean, perhaps to be dropped without friends or means. I was wondering why the W. C. T. U. or the Salvation Army or some other worthy society could not have found a place for this woman where she could support herself and child, especially when there is such an increasing demand for help of all kinds. It will cost quite a little sum to send her back to her old home. Now, could not this sum have been employed in placing her where she could do good and receive good? Can any of our readers tell me if there is any such institution located near where emigrants land?

The above paves the way in a vivid manner for something else that is just coming up before our American people. Read the following, which I clip from the *Illinois Issue*:

MISPLACED PERSONAL LIBERTY.

Why deprive paupers, lunatics, idiots, and criminals of the personal liberty of landing upon our shores, and grant saloon-keepers the personal liberty of manufacturing them at home?

What do you think about it, friends? While our nation is thus treating that poor woman and her child described in the above, is it really true that the saloon business, at least indirectly, is kept going and encouraged in its work of *manufacturing* paupers, lunatics, idiots, and criminals? Answer the question yourself. If you are in

dry territory where no saloons exist, thank God; and after you have thanked him for your own environment, read the news coming from all the great cities or any small town where saloons are tolerated, and then wake up and do something. Mr. Rutledge, the great temperance orator, told us a few days ago that several important temperance measures had been lost, some of them here in Ohio, because only *one voter in seven* voted at all; and in our recent crusade for woman suffrage, only one man in three voted either for or against. They just stayed at home and attended to what they considered to be more important business.

But there is going to be an awakening, thank God, and an awakening is now going on all over this whole wide world, and God's kingdom is coming.

With the above as an introduction I wish to submit to you another important matter concerning which the world is (thank God) also waking up. In our issue for September 15 I spoke about dentistry and what it is doing for the health of our people. A good friend of mine has sent me a beautiful little magazine entitled *Oral Hygiene*, a journal for dentists; and after briefly turning over its pages I devoutly wished it could be read by every man, woman, and child. Here is the letter that called my attention to the magazine:

Cowan, Carr & Lauderdale,
Producers of
HONEY
Geneseo, New York

My dear Sir:—By this mail I am sending you a copy of *Oral Hygiene*, and desire to draw your attention to the editorial by Dr. Hunt, on page 226. It may be a little too plain-spoken for a lay publication such as *GLEANINGS*, but I think your perusal of the article will possibly be of assistance to you in some of your future writing; and at any rate I am glad to introduce to you another courageous man, "Dr. Hunt," who is not afraid to say what he knows is true.

Geneseo, N. Y., Sept. 13.

J. W. COWAN.

Below is the article referred to, which I clip from said magazine:

Every child has the sacred and inalienable right to be born free from disease, free from deformity, and with pure blood. The State which does not do its full duty in the matter of securing these sacred and inalienable rights to all children is deficient and delinquent in its duties.

From 70 to 80 per cent of abdominal and pelvic surgical operations on women are the result of gonorrheal infection transmitted by infected and supposedly cured husbands.

Gonorrhea permanently maims one in a hundred and kills one in two hundred.

It is a shame to our civilization, a fearful sin of omission on the part of the State, that not less than five hundred noble and pure women are inoculated annually in Indiana with loathsome diseases, and the law is silent.

The venereal diseases are social assassins. They cause deterioration of the race.

Twenty-eight per cent of insanity is caused by syphilis. The government spends scores of thousands of dollars, and establishes rigid inspections to prevent the spread of the coitus disease (animal syphilis) of the horse, but the infection of the horrid syphilis that entails endless misery on scores of thousands of innocent women and children may be disseminated by anybody, and is being disseminated by scores of persons in this country, unchecked, under the protection of the "personal liberty" flag. Alas, that so little regard is had for the loss of liberty of infected women and children.

Marriage of a man with venereal disease is not only a violation of decency and love; it is a hideous and dastardly crime. And, let not the State be *particeps criminis* by failure to enact restrictive measures.

There exists a test for syphilis so simple that there can be no more objection on any sentimental ground to it than to vaccination.

A child born with syphilis will rarely come to useful manhood or womanhood. Such are almost certain to become dependents and delinquents, and so a burden to society.

To permit the procreation of the unfit is a violation of all the laws of economy. That State is sadly incompetent which permits lepers to marry and procreate, and then builds homes for the infected progeny.

Let a man poison a pure woman with arsenic, and the State takes him severely in hand without hesitation or care of expense. Let him poison her pure body with the leprosy of syphilis or gonorrhea, and the State is silent.

Prudery, the cause of the silence, is not a virtue. It is a mock-modesty. It is to virtue as nastiness is to purity. Yet it holds us back from steps necessary to secure the sacred and inalienable right of children to be born free from disease.

Our readers will recall that I have taken up this matter several times before; and I hardly need inform you that the saloon business is at the bottom of the whole work. Where saloons are banished, houses of ill fame soon disappear. They can not live without the curse of intoxicants. The people who make money out of this traffic are fighting woman suffrage tooth and nail. They well know that if women handle affairs, innocent mothers along this line will be a thing of the past; and if the mothers could have their say in the matter it is very certain that no more children would be cursed for life, because their fathers first got drunk and then followed after the "strange woman."

WAS ALL CREATION MADE SOLELY FOR MAN'S
BENEFIT.

Mr. Root:—Under the heading Special Notices, in a letter from a correspondent, I notice this paragraph:

"I believe that God placed every thing here to be of use to man in some way or other, but only we are so blind we don't catch on to all of them."

Now, I have no disposition to find fault with the writer of this paragraph; but I wish to call attention to what I consider a serious mistake often made by mankind in assuming that, because we are the dominant, and, because of our intellect, the most powerful visible creature inhabiting our earth, that the earth and all that is therein, and the sea and all

that is therein, and the air and all that is therein, are made for man's peculiar benefit. I am sure that man can be benefited and learn something from all creatures, but that is not the purpose of their creation. I can conceive of no reason for man's being placed on this earth other than that he might have opportunity for growth and development, and the acquirement of knowledge, power, and self-control. To me, life on this earth is as a great school with wonderful opportunities; and I believe that all life on this globe, however far below us it may be in development, is placed here for the same purpose, that it may develop, unfold, and gain experience. Because we form the highest class in this great university, we should not conclude that all the lower grades are placed here for our benefit. We should rather strive to be of assistance to the lower classes by showing kindness and helpfulness in all possible ways. I fear the idea that all things are created for our benefit is the cause of much needless cruelty to helpless dumb animals.

May God help us to see and realize that all life is one, and that we are no better in his sight, and no more objects of his loving care than the most lowly objects of creation.

Louisville, Ky., Sept. 30.

W. C. FURNAS.

SHOTS THAT WEIGH 1000 LBS. EACH, ETC.; SEE
PAGE 197, MARCH 15.

I am still on the U. S. S. Arkansas, and have the gyro compass. We just came in after target practice, where we broke the world's record with twelve-inch guns, firing six shots and making six hits in fifty-seven seconds. You can imagine how fast the boys worked handling projectiles weighing nearly one thousand pounds each, in such a short time. We are all proud of our record.

I was promoted to-day to "electrician, first class," which pays \$55.00 a month—an increase of \$11.00 a month.

We are going to Naples, Italy, Oct. 25. I expect to go to Rome and see the sights, which I hear are very interesting.

By the way, I received GLEANINGS this evening, when I happened to glance at the trouble with your teeth. That is one thing the navy requires most strongly; and, thanks to sister Donna, who used to scold me about mine, I finally got to noticing people's teeth. I also "noticed" yours when I was there, and often wondered if you realized what a difference it makes when a person gets up in the morning. That is one thing most people give little attention to, and yet it is one of the most important things.

HOMER ROOT.

U. S. S. Arkansas, Brooklyn, N. Y., Sept. 18.

Dear nephew, I am glad to hear of your promotion, and I am glad, too, to see you take your old uncle to task for carelessness in his personal habits; but just a word about those 1000-lb. projectiles. I am, as a rule, glad to note progress and efficiency everywhere; but I am praying that the day may soon come when "peace on earth and good will to men" will do away with the need of engines of war. I know there are many great and good men who claim these immense battle-ships are really *messengers* of peace; and it may be that Mexico is behaving a little better because of her knowledge of these things, especially when she considers the matter of permitting her subjects to lay hands on citizens of the United States.

High-pressure Gardening

"HIGH-PRESSURE" CANTALOUPE MELONS, ETC.

On former pages I have told you about pushing the dasheen with old well-rotted stable manure and irrigation. I think I mentioned, also, giving my cantaloupe melons some of the old well-rotted manure. Let me go a little more into detail. Some time in April I got a five-cent package of cantaloupe melon seed. I think they were Burpee's seed. I asked for the Rocky Ford strain of cantaloupe; but the dealer here in Medina was sold out, and gave me something that came from Burpee's that he thought "just as good." I have told you what bad weather for general garden stuff we had in April and May. Only a few of my melon seeds came up, and what did come up were such miserable-looking spindling things that I had very little hope they would ever amount to any thing. I covered them up with newspapers, however, during frosty nights, and about the time I got that rich old manure for the dasheens I gave some also to my melons. Now, this is the way I did it: I dug the soil away from each melon-plant. I pulled it back in a circle clear around the hill, and went down deep enough to uncover the white tiny rootlets. Then I filled in this cavity with perhaps a quart or two of this old heavy rich stable manure, mixing it in with the dirt. I finally soaked the manure and soil with water; then with my hoe I pulled some soft fine soil all up around the plants, covering the wet part so the sun could not make the clay soil bake. Some fine weather coming on soon, the melon-plants just woke up and astonished me. I visited them every night and morning, to notice the change—kept the dirt stirred around them, all the weeds out, and in a little while they were sending out runners. Under the stimulus of this rich manure they made an astonishing growth, and pretty soon melons were set in great profusion. I think I watered them only once after putting the manure around the roots. During the last of August we began to get ripe melons; and not only in our own home but from all around Rootville came expressions of "happy surprise." The melons in the market which had been shipped in from away off somewhere could not be compared with them. And right in here comes another of my "wonderful discoveries" in regard to God's gifts. The melons were so luscious, and there were so many of them, I began to use them for my evening meal instead of apples. This is the way I did it: Let the melon get good and ripe, so you can eat it with a spoon. Cut

it in halves, and scoop out the seeds; then have your five-o'clock supper of cantaloupe melon and nothing else. If the melon is real ripe you can scoop it out with a spoon until nothing is left but a thin rind. According to my notion you would need a little bit of cheese to go with your melon to make a "balanced ration."

Now, when you get hold of some melons fresh from the garden, as good as ours, if you do not agree with me that it is the most delicious meal you ever ate I shall be surprised; and the best part of it all is, that it causes no disturbance whatever to the digestive apparatus; whereas if I should eat a regular square meal as people generally do for the last meal of the day, I should be distressed all night, and have nightmare, etc. Just one word more:

If you have only a little backyard garden, by following the above program you can have beautiful nice melons that, on a rough estimate, would not cost you over a cent apiece; and in quality as well as cost they are away ahead of any thing you can find in the market—at least that, has been my experience. Still another word:

Some Hubbard squashes, about a dozen hills, near the cantaloupes, that had the same treatment, have run all over the garden, and there are fifteen or twenty most beautiful squashes, some of them about the largest I ever saw; and a wheelbarrowload of that old rich black manure did it all. If you want to reduce the "high cost of living," have a garden, even if it is only a little bit of one, and manage it according to the directions above given.

"PRACTICAL POTATO CULTURE;" ALSO SOMETHING ABOUT HEADING OFF THE BUGS.

I hold in my hand an excellent little book of 126 pages, by E. A. Rogers, of Brunswick, Maine. The book is chock full of excellent suggestions in regard to growing potatoes, not only in Maine but almost anywhere else. It also contains some beautiful pictures—a good lot of them—and it is well worth the price of any potato-grower or to anybody who is interested in the matter of better potatoes and more of them. Now, with all the good things in this book there is something else about it that troubles me a little. The following letter to our Experiment Station explains itself:

Ohio Experiment Station, Wooster, Ohio.
DIRECTOR THORN.

What troubles me just now is that in a book entitled "Practical Potato Culture," in speaking of the use of Paris green, arsenite of lead, and other arsenical poisons, the statement is made very vehe-

mently that the steady use of these poisons for a period of years gets so much poison in the soil that it damages vegetation, kills apple-trees, etc. They give two or three pages toward proving this statement. Now, T. B. Terry, you may be aware, says in his potato-book it's very much better to get along without poisons, and I agree with him. Perhaps if I were growing potatoes on a larger scale, however, I would use poison. Now, why I come to you in regard to this matter is that the book winds up its argument by recommending "Bug Death," and I am inclined to think the book is sent out by those concerned in the sale of "Bug Death." Could you briefly tell me what you think about the statement that "the continued use of Paris green or even arsenite of soda will injure the soil"? I feel satisfied Paris green usually injures the foliage of the potatoes more or less. That's one reason why I prefer to get along without it.

A. I. Root.

Below is a reply from Professor Gossard, the Station Entomologist:

Mr. A. I. Root:—Director Thorne has referred to me your letter of July 10, requesting that I answer regarding continuous use of arsenicals. The original investigations upon which these statements regarding the accumulative effects of arsenic are based were conducted by Prof. Headen, of the Colorado Agricultural College, on apple-trees growing in an alkali soil. It is probably true that the continued use of arsenicals on such a soil will finally work injury to the trees by putting arsenic into solution in water. The hair roots are said to be killed, and more or less of arsenic was found in the wood, bark, fruit, and leaves of these trees. Some other Western investigators, notably Director E. D. Ball, of the Utah Experiment Station, take issue with Prof. Headen regarding his general conclusion, and believe that caution is to be exercised only with trees standing in alkali land. However this may be, we know of orchards in Ohio that have been continuously sprayed with arsenicals and copper salts for 20 to 25 years, and the orchards are in the pink of condition, while surrounding orchards that were not sprayed at all are in far worse shape, most of them dead long ago. I have had occasion to sample soils in Ohio orchards where spraying had been done very liberally for a number of seasons, and we were never able to get more than a trace of arsenic in the soil or in the wood of these trees. The arsenic goes into solution slowly, and is carried away with the percolating waters. While I am in no position to say that enough arsenic might not accumulate in the course of a century to injure orchard trees, or other vegetation growing upon such soil, I think it rather improbable, and am sure that such sprays can be applied very liberally for more than a quarter of a century without perceptibly injuring apple-orchards planted on it, and in which grass, weeds, and the general mulch of the orchard appear to be in perfect health. I do not remember the exact composition of "Bug Death," but from a hazy remembrance believe that the poison principle in it is zinc oxide. It appears to me that an accumulation of insoluble zinc compounds in the soil would be as apt, and probably more apt, to cause injury to vegetation than arsenic would be.

Arsenic, in a small quantity, is a tonic to many kinds of plants, just as it is to the human being; and with the abundant rainfall we have in Ohio, and with the absence of alkali. I believe it very improbable that any damage whatever will be done to the soil in the course of half a century or more of continuous use. However, with such crops as potatoes and garden stuff, I would think it the part of wisdom to rotate crops, and not apply the spray oftener than once every two or three years. With this sort of usage it is improbable that Ohio soils

would ever be injured by the small quantities of arsenic used on potatoes.

I question if any one is able to give a much more definite answer than this to your question; but you may be able to get fuller experimental data from the United States Department of Agriculture.

H. A. GOSSARD, Entomologist.

Wooster, Ohio, July 12.

I am very glad to know that the danger alluded to is little or nothing in the average locality; but I wish to add one suggestion in regard to poison of any kind. Terry says in our potato-book that many times killing the first Colorado beetle as soon as one can be found, and followed it up, will often obviate the need of the troublesome business of spraying. When a potato first begins to shoot up out of the ground, give the little boys and girls a nickel for every bug they find. Later, when the bugs get to be more plentiful, give the children a cent apiece for them; then 25 cts. a hundred, and finally 5 cts. a hundred. A wise father can regulate the price so that the children will not make money *too* fast. I have done this repeatedly with my own garden, and I not only have *better* potatoes, but gathering the bugs and picking off the eggs is *less work* than using poison. Where your neighbors are close by, and allow the bugs to eat up their potatoes, I know it makes a little more work. At the same time you go after the bugs you can look carefully, not only after eggs, but for any weed that has got a start in the potato-hill. During this last summer I have greatly enjoyed this method of proving that "prevention is better than cure."

THE DASHEEN—MORE ABOUT IT.

We clip the following from the Jacksonville *Times-Union*:

THE BROOKSVILLE PLANT-TESTING STATION; "FOREIGN-PLANT INTRODUCTORY STATION" OF THE GOVERNMENT.

"The Stroller," in the last issue of the *Florida Grower*, has the following mention of this interesting and important institution:

"Brooksville has the distinction of being one of two places selected by the United States Government as a plant-testing station, the other being at Miami. Here the Agricultural Department has 35 acres of land, and has established what is known as a "foreign-plant introductory station." Here have been introduced many kinds of forage plants, foreign bamboos, foreign oranges and grapefruit, and last, but by no means least, 182 varieties of the dasheen. Of this number over one-half have been found to be practically worthless, and but three edible. The roots of these three varieties are used as substitutes for potatoes, some claiming them to be superior, and certainly they are very fine eating, being widely used for that purpose in the countries from which they came. One other variety is being produced in quantity for a tryout as to its value as a flour. Last year this station raised 45,000 pounds of dasheens. Of these, 15,000 pounds were distributed to growers and 30,000 pounds sent to Battle Creek to be tried out for flour.

Prof. Gomm, who is in charge of the station, says that the demand last year for seed was tremendous.

He sent the seed in four-pound lots; and to get rid of 15,000 pounds he certainly must have done a rushing business; and he further says he supposed that there were at least 1000 requests that could not be complied with last season. This season's crop will be distributed in the same way, as the Government wishes to encourage the growth of this food, which seems destined to help in a measure to solve the problem of the high cost of living. There are about five acres in the three edible varieties, and this field is certainly a beautiful sight.

I saw here South African millet standing eighteen feet high. Egyptian wheat is growing well, and there are thirty-five varieties of sorghum under inspection. The bamboo being tried are the Japanese varieties used in that country for building houses. Prof. Gomm is authority for the statement that several hundred thousands of dollars' worth of this bamboo is annually imported into this country for various purposes, so that this would seem to be the beginning of an industry in itself. For a soiling crop they are trying out an imported bean, which Prof. Gomm mentioned as the "Jack" bean. It grows to be seven or eight inches long; and, while I was told it was not edible, it looks like a mighty fine food for cattle."

Let me add that, since our report of the dasheen flour, some of our women folks are learning better how to use it; and this morning I ate a dasheen gem that was certainly equal to any thing I ever tasted in the bread line. So far as I know, dasheen flour can be shipped and kept like ordinary wheat flour. Inquiries are coming to me constantly, asking where they can get the dasheens. The above clipping tells us the Government is going to have additional lots in 4-lb. packages, and it may be well for the friends to get their applications in early. Don't write me, but apply to the Department of Agriculture, Washington.

By the way, what do you think of millet standing 18 feet high? Can anybody tell us more about it, or is it a misprint?

DASHEENS—STILL MORE IN REGARD TO THEM.

For fear my Florida quarter-acre might not be able to furnish a tuber or two to every reader of GLEANINGS, I directed a letter to the Brooksville Board of Trade, asking them if they would be able to help me out if I did not grow tubers enough to go around to our 30,000 subscribers. Of course, I do not suppose that every one of the 30,000 will apply for a tuber; but I want to be sure not to disappoint any one. Below is their reply:

Mr. A. I. Root:—Your letter of Sept. 20 is at hand, and is greatly appreciated. We are glad to be assured that you are taking such an active interest in the dasheen, and we hope that the seed stock you obtained from us last spring will bear abundant returns.

We have five acres out this year, and there are, perhaps, that many acres more in the hands of the farmers hereabout, so you see the crop this year will be limited. The Government has six or seven acres out at the Foreign Plant Introduction Station here, but we presume they will use them for distribution in 4-lb. packages as they did last year. You can rest assured, however, that we will supply you with a

portion of our crop, which will not be on the market much before the latter part of November.

If you wish to be on the safe side, be careful of what you do in the matter of distributing dasheens secured from South Africa, South America, New Zealand, etc. Your Uncle Sam at the local station is proceeding with the greatest caution in this matter, as you will readily understand when we tell you that, out of about 200 varieties obtained from foreign countries, they have as yet recommended but four as being superior for human consumption. Many varieties are yet too acid to constitute eatable stuff; and if they ever amount to any thing your Uncle Samuel will surely discover it here through extensive experiment. Therefore, test out every variety, or send samples to the Department to be tested, before you offer them to your patrons, or they may charge you with handing them something worse than a lemon—an Indian turnip. The dasheens that have been approved by the Government experts here are O. K., and we have reason to believe in a great future for them, as indicated by the reports of those who tried them in various parts of the country last fall and winter. They have been used by some of the most noted dieticians in the country, and have been pronounced especially good for persons suffering from any form of stomach trouble.

Then think of their versatility! You can treat the young stalks as celery, and secure a product superior to asparagus tips or mushrooms. A single planting will grow eight crops, coming off about every two weeks. You can also use the stalks for rhubarb and the leaves of certain varieties for greens. When the tuber matures you can use it in any form the potato can be used, or grind into flour and make of it any thing that can be made of wheat or other flour. You can make a pie-crust of the flour, and the filling of the stalk, as in rhubarb, or the tuber, as with the sweet potato or pumpkin.

My friend, if you would be initiated into the mysteries of propagating and harvesting dasheens, make it a point to visit Brooksville on your way South next month, and we will show you "sumpin'."

C. H. FREAS, Sec. Brooksville Board of Trade.
Brooksville, Fla., Sept. 23.

Later.—On receipt of above I asked if they could fill orders to our readers by parcel post, and below is their reply:

Mr. A. I. Root:—In reply to your letter of Sept. 26, I will say that we will be pleased to ship by parcel post any orders you may desire for your patrons, and sell you in quantity for other means of distribution.

If you can manage to get here in November, you will likely see the dasheen growing in all its pristine glory, for the stalks remain green until the frosts come. Try to be here.

The publication and clippings arrived all right, and we were glad to note the mention you make of the stuff that made Brooksville famous. The writer has written enough about that tuber to fill two volumes, and I could write as much more if it were necessary. We will be glad to have you visit Brooksville at your earliest convenience.

Brooksville, Fla., Sept. 29. C. H. FREAS,

Please notice what they say of it in regard to acidity. Mrs. Root has just been urging that I should give also the objectionable features of the dasheen as well as the good. Well, cooking entirely destroys this acidity. Here is what the Government bulletin has to say in regard to this matter:

The leaves of the dasheen contain the same acid principle that characterizes the Indian turnip and most other plants of this family. They should never be tasted raw. The tubers of the most promising

Trinidad varieties are free from this acidity, even in the raw state; but because of the possibility of tubers of an acid variety being mixed with these it is best never to taste them uncooked. In cases of the accidental tasting of acid tubers or leaves, lemon juice in a little water is found to alleviate the ill effects.

If dasheens are handled in water in scraping or paring them for cooking, a level teaspoonful of sal soda should be added to each quart of water. The outer part of the tubers contains an irritant that causes the hands to sting in somewhat the same way as the mouth and throat from the eating of raw, acid leaves or tubers. The hands are affected in this way even in the case of tubers that are not acid to the taste. If water is not used while scraping them, it is best to wash the hands afterward in soda water of the strength mentioned.

The fat of milk or meat seems to assist in destroying the acidity.

Hunters are well aware of a similar property belonging to the Indian turnip, alluded to in the above letter. Please notice their endorsement of what I have told you, that the dasheen, every particle of it, at every stage of its growth, is valuable for human food; and not only that, it is a delicious article of diet.

One word more about the tubers to be given our subscribers. They are to be sent only to those who apply, and who have their subscription paid up for one year or more from the time of applying. Send in your applications when you choose. We expect to mail them from our Florida home somewhere about the first of January. As they are injured by freezing, perhaps the friends in the extreme North had better not order them sent until it is time to plant, say March or April.

THE AMADUMBE DASHEEN OF SOUTH AFRICA; SEE PAGE 698.

Mr. Root:—Your recent letter was received on the 13th, and the package the 14th. On the 15th I planted them. I took the responsibility of planting on Mr. Ault's land, as his dasheen show so much better than mine or yours. It is very evident that the dasheen needs much moisture as well as an abundance of fertilizer, both organic and chemical, for best results. We had some for dinner yesterday (small ones) that I fingered out from your first planting in January. I am afraid you are going to be disappointed in the yield. Your land is entirely too dry. Ault's land had water standing in the ditches each side of the rows all summer.

As to the edible qualities, we think we would rather have a good Irish potato.

MR. AND MRS. C. L. HARRISON.

Bradentown, Fla., Sept. 16.

The above corroborates what we have said before, that the dasheen, in order to grow to perfection, should have wet ground, or ground where the roots can get down into running or standing water; and the fact that ours down in Florida did not have this wet ground is, may be, why friend Harrison thinks he prefers a good Irish potato. We have now cooked quite a few here in Medina; but so far they are hardly

mature enough to make a nice baked dash-
een; but the outside tubers cut up and made into a stew like mushrooms is certainly a splendid substitute for a mushroom. And please consider that mushrooms sell for from 40 cts. to \$1.00 per lb., while the dasheen may be grown for 40 cts. a peek without any trouble. When Mrs. Root suggested that I might be giving it too much praise, Huber replied, after I carried over to him a little dish for breakfast, "Father, you *can't* give it too much praise." The other children, however, were not quite so extravagant. Now excuse me for the following summing-up as I see it: The dasheen can be grown *anywhere*, and every bit of the plant is *edible*—the tubers under ground, the tender shoots above ground, for a stew, and the great green leaves (if they are not too old) for greens. It may not fully mature here in the North. That is not quite settled; but it will certainly grow these luscious small tubers with their tender shoots as a substitute for asparagus.

THE HYBRID TOMATO SEED, ETC.

Mr. Root:—I should like to make a few additions to your article on tomato hybrids in the Sept. 1st GLEANINGS. First, the New York Experiment Station is at Geneva, not Oneida.

In cross-fertilizing the tomato, not only does the pollen have to be carried from one blossom to the other as you have described, but the anthers of the blossom have to be removed before they commence to shed their pollen, as the tomato blossom is a self-fertilizing flower, and cross-fertilizing does not take place readily.

Now as to the varieties. I used the Earliana in quite a number of crosses, and it was quite good; but it made a too soft tomato. But the best results I obtained were by a dwarf tomato. This seems to give a stronger and more vigorous plant, as was found by the New York Experiment Station. The dwarf that I used was one that I originated, and not only makes a vigorous tomato, but one that has a solidity found only in the late kinds. In canning I find my hybrids of this cross were far superior to the Earliana crosses. It is only in canning or shipping that this quality becomes noticeable. Down in Marietta, O., where over 500 acres are grown on stakes, early, and shipped to such places as Cleveland and Chicago, they never use Earliana, but mostly Beauty.

This matter of first-generation plants is an interesting one. Corn is another crop that seems greatly benefited by crossing. Prof. East, in an article in the *Country Gentleman*, last October, made the statement that from 20 to 150 per cent of gain had been made in many cases. It seems strange that some enterprising seedsmen does not produce such seed for sale; but Henry Field, of Iowa, is the only one whom I know of who has offered it yet.

It may seem a high price to pay \$5.00 per ounce for tomato seed; but when we know that an ounce of seed will make enough plants for two to four acres, the increase of yield will pay many times over for the cost of the seed.

I wish somebody would offer crossbred corn for sale. I am going to do what I can in tomatoes, and it looks as if the readers of GLEANINGS would use up my supply of seed, as they seem to be an unusually up-to-date lot of people.

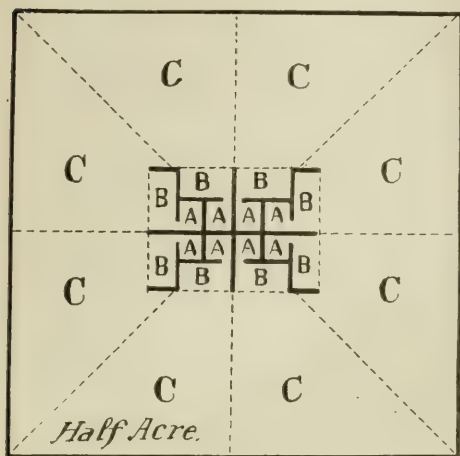
Medina, O., Sept. 18.

E. C. GREEN.

Poultry Department

CONVERGENT POULTRY-RUNS ACROSS THE WATER.

Dear Sir:—Since the time you published my article about the convergent poultry-runs, Nov. 15, 1912, I have not seen any thing further on the matter; so I thought you would like to hear the opinion held over on this side.



The chief drawback seems to be in the great length of the run when compared with the width, as the fowls are not inclined to keep the grass down at any distance from the house; and to overcome this Mr. Wright gives a plan of a plant of eight houses, sheds, and runs, which I enclose.

Our runs are occupied all the year round, so we have to allow more grass than you do.

Area of plant, $\frac{1}{2}$ acre, consisting of eight houses, sheds, and runs. A, roosting-house 6 ft. square. B, scratching-sheds 12 ft. square. C, grass runs.

From Lewis Wright's Illustrated Poultry Book.

Personally I prefer the colony system, which Mr. Wright credits to Mr. Stoddard.

LINE GOOD FOR CLOVER.

I am afraid you missed the point in the leaflet taken from the Mark Lane Express about lime. Although it was printed in 1910 it was an article on farming in the 16th century in England, and went to show that the old timers knew that lime was good for clovers. Lime and salt are the two oldest artificial manures in existence, and are largely used in this country as well as seaweed.

FINDS BLACK BEES SUPERIOR TO ITALIANS.

I was pleased to see in the Jan. 15th issue J. E. Crane's remarks about the good old blacks. All the other "Gleaners" seem to think them of little value; but I can assure you that I have had Italians direct from Italy, and that they can't gather honey as do the blacks, and they are not half as good at wintering.

W. A. TEARE.

Ballashellan, Ballabeg, Isle of Man, Jan. 2.

Many thanks, friend T., for the pains you have taken to keep me posted. The diagram you give is certainly very ingenious, and might answer an excellent purpose for a half-acre poultry-farm. There would certainly be economy in constructing such houses, especially for a cold climate. I would, however, greatly prefer having an open court, and houses around the outside. This isolates the eight different roosting-

places. The arrangement you give, you will notice, will be a rather bad place if vermin or some contagious disease should get among the poultry. I have used the plan I have described, one winter. The inner court I have spoken of is 45 feet across, with the granary in the center. No chickens are allowed in this inner court or inclosure, and it can be kept as neat and tidy as you please; and at the same time the eggs may be gathered, fowls supplied with all they need right in this one spot, and yet the chickens can go away off in every direction just as they do on the ordinary farm. Ours frequently go away clear out of sight, both young and old. On account of the trouble with the hawks, however, we keep the small chicks in a covered inclosure until they are able to take care of themselves.

In regard to black bees being superior to the Italians, this sometimes happens in certain localities or with an extra good strain of black bees. I believe, however, our great honey-producers the world over prefer the Italians as a rule; but it has been intimated that a cross between the two races, even if they are ugly, will get a larger crop of honey, many times, than either the pure blacks or pure Italians.

DUCKS AND CHICKENS SWALLOWING CROOKED RUSTY NAILS, ETC.

The letter below accompanies a photograph of the contents of a duck's crop.

EXTRAORDINARY DEPRAVITY OF APPETITE. . .

This collection of "ironmongery" was removed from a duck owned by Mrs. Bloomfield, of Taringa, Brisbane. The bird died after a few days' illness, and an autopsy revealed the cause of death—sixty-two nails, bent and straight, varying from one inch to two inches; three iron boot-tips, one one-inch screw, and four wood tin-tacks, all of which had been swallowed by the duck, and were in an advanced state of rustiness.

Under the photo we read the following:

I see you take a keen interest in poultry and ducks; but I think the photo of the diet that the duck in Brisbane, Queensland, took, can "go one better" than all your American ducks, allowing that all exciting things generally come from America.

WALTER LINCOLN.

Toowoomba, Queensland, Australia, June 2.

The picture reveals that the nails were mostly crooked ones. This particular duck, no doubt, was foolish enough to think that they were worms. I remember, also, that Kellerstrass in the first edition of his book advised against allowing rusty nails, especially crooked ones, to lie around where the chickens might get hold of them. Since that time I have kept watch to see if any of our chickens could be fooled by crooked nails or pieces of rusty wire. I have never found one that was foolish enough to swal-

low such an object, and therefore I can not think that it is a very common thing for a chicken to hurt itself by swallowing such objects, although it might happen at times.

HOT TALLOW FOR THE RED MITES, ETC.

Dear Mr. Root:—I have followed your poultry articles with interest, being particularly interested in the article about "convergent" yards. Some time ago one of your correspondents wrote that he prevented mites by coating his roost-poles with hot tallow once a year only. I had lately bought a farm that had a chicken-house very much infested with red mites. I had been painting my roosts once a week with crude petroleum scented with sassafras and cedar oils. I substituted the hot tallow, but one week later found the mites in quite increased numbers. I resumed the petroleum, and now have them almost exterminated. An application of tallow followed by petroleum once a week is a very good thing indeed, as it makes the poles more slippery than the petroleum alone; but I don't think the tallow alone will do the business.

CHARLES A. JOHNSON.

Battle Creek, Mich., July 25.

WHY HENS PULL AND EAT EACH OTHER'S FEATHERS.

As I am making the Rhode Island Reds a specialty I write you in regard to feather pulling and eating. I am a subscriber to GLEANINGS, and enjoy it very much, and suspect you know something about hens as well as bees.

Cuba, N. Y., Aug. 25.

Mrs. C. E. PETTIT.

My good friend, there are two or more reasons why hens should pull feathers from their mates, and eat them. One is that they are lacking animal food. Give them beef scrap or ground meat. The other is they are probably shut up in too narrow quarters, and lack green stuff. Give them all the lettuce and cabbage, etc., they want, and also give them a mash containing salt, but not too much. Salt about as much as we do our food, then let them run outdoors in a large yard where they can get bugs as well as green stuff, and I think they will get over it.

A 25-YEAR-OLD HEN; A SUGGESTION IN REGARD TO A "NATURE" BROODER.

I give place to the following, clipped from the *Farm and Fireside*, because it tells us how old a hen may live to be, and suggests also a brooder for chickens on nature's plan.

A hen owned by the writer, and having quite a remarkable history, has recently joined the majority of her kind. I bought this hen in 1890 for half a dollar. She was just a plebian yellow hen, without family or reputed pedigree. "Is she young?" I asked of the seller. "She's not old; she's not laying," was the reply.

I scanned her feet, as a buyer does a horse's mouth, to guess her age. I concluded she had seen a couple of summers or more. I therefore believe her to be at the time of her death, in April, 1913, about twenty-five years of age. She made good her reputation as a "fair layer."

She began to fail in strength when about ten years old. But she kept on laying and rearing her broods.

That is, she laid irregularly, and in 1912 one egg only. Her eggs had ceased to be fertile for several years, or after she began to look old.

"Why was her life prolonged?" She would mother any brood from quail to turkeys, at any age offered, even after she was too crippled to scratch for them. In her later years a brood of young fowls was always given her in the autumn to insure her own safe passage through the winter. These chickens thought the mother hen hovered them, and were satisfied with the warmth always obtained by cuddling; but it was the vitality of the young which kept the old alive.

Of course, this does not prove that *any* old hen would receive any kind of chicks of any age, but it looks that way. Once in a while we find a hen that is that kind of mother; and we are told that capons will care for chicks all right. A hen that will take any brood of chickens from an incubator, or which are left motherless for any other reason, is very handy to have in the poultry-yard; and one such hen put in a barrel will take good care of as many as 70 day-old chicks, as I have told you. The ones outside will change places with those inside, and keep quite comfortable, even during frosty nights.

PERMANGANATE OF POTASH FOR POULTRY.

If I am correct our leading authorities agree that a little permanganate in the drinking-water—just enough to color it a little—is a benefit in warding off contagious diseases.

The following from one of our poultry journals (I regret that I can not say which one) suggests something else, and it also tells how to get it at a low cost.

I find in using permanganate of potassium in the drinking-water that it eats or keeps away the slimy substance that otherwise adheres to drinking-vessels, especially in warm weather. If you wish to get it cheap, go to the man who takes care of the fumigating in your borough, county, or township, and buy a pound from him (if he will sell it). Here I can get a pound for 22 cents, whereas to buy at a drug-store it costs 50 cents. It is burnt in the fumigating of houses for contagious disease; and if the Board of Health handles it, it comes cheap.

A "BOILED DOWN" POSTAL CARD.

You may recall that I have something to say about this in our issue for Oct. 1; and our good friend Madeleine E. Pruitt seems to have fallen in with my suggestion.

To Our Homes for July 15 I will say, "Amen." New baby here—girl. MADELEINE E. PRUITT. Abilene, Tex., Aug. 18.

It might be a little impertinent to ask the question; but there are quite a few of us who would like to know just who is the mother of that girl baby. May God bless her and the mother too.

Temperance

SHALL WE CONTINUE TO GET OUR "REVENUE" FROM THE BREWERS, SALOON-KEEPERS, AND DISTILLERS?

Mr. Root:—I always read your Home Department with interest. In the paper of Sept. 15 you publish a letter of G. M. Doolittle, in which he seems to give credit to the saloonkeepers for paying half the revenue, and says: "We are, willingly or ignorantly, receiving pay to the half of our proportion of the government expenses through the efforts of the saloonkeepers." Surely Mr. Doolittle is not seriously attempting to condone the sale of intoxicating liquor. As an intelligent man he must know that three-fourths or more of all the crime and poverty, and the resulting misery and degradation, are caused by drink.

As for myself, I am neither willingly nor ignorantly receiving my share of the taxes paid by the saloon-keeper. I accept it under bitter protest, being forced to do so by laws made by men who are blind to the awful results of the legalized liquor-traffic in our land, or are bought over by the liquor interests.

How can any part of the expense of the general government be said to be paid by the saloon-keeper when every dollar of liquor revenue costs the people more than ten? And this is only the monetary view of the matter. No amount of revenue paid to a government can make amends for the misery, poverty, and ruin brought upon its people through the legalized sale of injurious drugs or intoxicating poisons.

Your reply to Mr. Doolittle is all right so far as it goes; but does it cover the ground? If we could persuade all the young people to "seek the kingdom of God and his righteousness" there would still remain the blighting effects of the traffic in intoxicants with its consequent misery and poverty, forced upon the wives and children of the incorrigible fathers and husbands, made drunkards by our government's willingness to (in the language of the poet of the Sieras) "sell hell to whom will pay for it." God not only commanded the Israelites to bring up their children in his fear, but those who led the people astray were dealt with in a way to strike terror to evil-doers. Not only did his prophets teach the evils of idolatry, but those advocating idolatry, the false priests, were slain without mercy.

Let us not only teach the children of our generation the dangers of intoxicating liquor, but do all we can, also, to destroy from the earth this Juggernaut that is crushing the life, spiritual and physical, out of hundreds of thousands of our people.

If every one who claims to be seeking the kingdom of God and righteousness would vote for the destruction of the distillery and the brewery, the greatest hindrance to the coming of that kingdom, and Satan's most efficient instrument for the ruin of the human race, would be removed.

Asheville, N. C., Sept. 21. O. BROMFIELD.

Dear brother, Mr. Doolittle, myself, and all good people, are in hearty accord with what you say. May God hasten the day when his kingdom shall be first in our nation—not the brewers and distillers and liquor-dealers.

KANSAS—SOMETHING FURTHER "THE MATTER" WITH HER.

A few years ago there was some sense when the brewers said that prohibition was a failure; but it is a piece of stupid folly to keep up that old story just now. What brought it about? A few days ago I heard a remark from a man of considerable abil-

ity, that it was a question whether Carrie A. Nation did not do more harm than good. I have seen Carrie Nation and talked with her. Bless her memory! When the brewers and saloon-keepers were trampling law under foot in Kansas, our good friend Carrie took a hatchet and smashed things up. Then she said to the Governor of Kansas, to the mayors, and different officials, all the way down, "Put me in jail for breaking the laws if you choose. I have done some harm in the way of loss of property, etc. But before you enforce the law in my case, please consider the saloon-keepers who curse both body and soul by trampling law under foot." The grave judges and magistrates were in a corner. It behooved them to be consistent, at least where a woman was concerned; and the final outcome was that Kansas became a model State in the way of law enforcement. See page 699, Oct. 1.

Now, here is something further about that same Kansas that I clip from the *Union Signal*:

KANSAS YOUTH UPHOLD PROHIBITION LAW.

Again and again it has been said prohibition is a failure in Kansas; that when the older generation responsible for its adoption passed over the reins of government to its sons and daughters—for Kansas has recognized women's rights as full citizens—Kansas would "come back to her senses."

That this prophecy was without foundation is best evidenced by the following statement from Attorney General Dawson:

"The last two sessions of the legislature answered these false prophets by passing the most drastic prohibition law in the world, killing the drugstore saloon, making it impossible even to cure snake-bites by the liquor treatment, and absolutely clapping down the 'lid' and riveting it on.

"They were not satisfied by going this far, but showed their appreciation of the benefits of State-wide prohibition by making it a felony for the fellow who violated the law a second time. And I have just lately received from the warden at the penitentiary a receipt for one 'Red Mercer,' who was sent up from Barber County as a first consignment to serve nine years for violating the new prohibition law.

"The law that sent him there was made by these tow-headed, one-gallused boys who grew to manhood on the Kansas prairies without ever having seen a saloon."

WHISKY FOR PATIENTS IN A TUBERCULOSIS SANITARIUM.

It seems from the *Cleveland Plain Dealer* that the superintendent of the sanitarium has been criticised for refusing whisky to their patients. See this:

"Superintendent Wright has no conception of medical ethics, and endeavored to discipline physicians and nurses as though they were children. I believe a mistake was made in choosing Wright."

Dr. Fox was asked if he knew that patients in the tuberculosis sanitarium, many of them dangerously ill, had been deprived of whisky at critical times.

"Yes," he replied. "There is this about the whisky situation: Mr. Wright called in the medical staff,

and asked that the amount of whisky furnished patients be cut down. It may have been that whisky had been used a little too freely, but depriving the patients of the stimulant at needed times was far from wise."

I take it from the above that the trouble with the superintendent was that he is a little more up to the times in regard to the use of whisky as a medicine. Now, I should like to submit this whole matter to the intelligent, up-to-date physicians of our land. If I am up to date myself, the decision is that alcoholic stimulants are the very worst things in the world for a tuberculosis patient. If the patient must die any way, and you wish to hurry up his death, give him whisky. The fashion of giving a patient whisky to make him feel better as he approaches death, I know used to be very common; and many a poor soul has been hurried to a drunkard's grave simply through the mistaken kindness of nurses and physicians who ought to have known better. I for one prefer to die without the whisky, even if it does take a little longer. Mrs. Root's father, when near death, protested because the doctors said he *must* have whisky. He said, when almost too feeble to speak at all, "I do not want it, and I do not need it. You are making me a drunken man." And, thank God, we were able to overrule the doctors, and let the good old man die sober, years ago.

Later.—Oct. 6 we find in the *Cleveland Plain Dealer* more about the probe instituted because of the complaint of the inmates of the hospitals. Here is a report of what one matron said before the committee:

"Give them all the *whisky* they want, and it would be all right," Miss Kelly further told the committee.

Further on we read:

He said that in Dr. McAfee's time patients had whisky three times a day.

"Now we get it only once a day in the morning—and a mighty small glass at that," he added.

Just think of it, you friends of temperance and Christian people. In this sanitarium for tuberculosis patients, a comparatively able man confesses that he used to have "whisky three times a day." But under the present superintendent he gets it only once a day, and not a full glass of whisky even then. Is not this probe or investigation letting some pretty big cats "out of the bag"?

"MIGHT AS WELL TRY TO STOP THE WAVES OF THE OCEAN."

We clip the following from the *Union Signal*. See if you do not think it is about right.

In a frantic attempt to stem the tide of public sentiment which threatens to sweep them from the nation, the liquor interests are outlining plans for reform. "If the liquor-dealers do not want to see

this State dry in two years," the president of the Ohio Liquor League is reported to have said, "they must not only live up to every State and municipal legal requirement, but they must help to bring about certain reforms not on the statute-books." The warning is most timely, but we apprehend that none of the contemplated reforms will avert the threatened calamity. It is becoming more apparent every day that you might as well try to stop the waves of the ocean as to stop the tide of prohibition.

The liquor men have always had to admit that, when the Christian men and women of the nation whole-heartedly and aggressively determine to "make the map all white," it will be done.

IS EVIL IN THE ASCENDENCY?

Dear Bro. Root.—I have just read the letter in *GLEANINGS* by Bro. Doolittle. You will notice that the increase of revenue from liquors and tobacco in one year is about .05 2-3 per cent, while the increase of population in one year can not much exceed .02 per cent. In spite of all that is being done to check intemperance, it increases nearly three times as fast as the population. And the increase in crime marches hand in hand with the increase in intemperance. Facts are stubborn things. It is foolish to ignore them. Speaking in a broad way, the forces of our enemies are the victors; and unless there is a change we shall soon be like Sodom—ready for the fire to destroy. The present mighty effort of God's people to clean up this earth fails to do it. What we can not do, God will do. Jesus is coming. The last message to this truth (Rev. 10:11) is now world-wide, and my spirit says "Amen."

Riverside, Cal., Sept. 20.

W. E. LITTLE.

My good brother, what you say is, I suppose, to a great extent true; but, if I am correct, the figures you give come either from the brewers and liquor people, or from some government official who is not in sympathy with prohibition. If you will read the *American Issue*, published at Westerville, Ohio, you will, I think, get the *full* facts in the case. It is true that a large quantity of liquors has been recently manufactured; and the statistics tell what has been made, and the brewers would make us believe that it has *all* been consumed as a beverage, which is not true.

"SOCIETY MUST PAY THE PRICE."

Presuming our readers have all read about the trial of Diggs and Caminetti, I omit details, and simply give the summing-up of Judge Van Fleet after sentencing them not only to pay fines but to go to the penitentiary.

I wish to say that all through this case there is the evidence that drink had its paralyzing influence upon the morals and the minds of these men and the young girls with whom they went on that trip to Reno. The terrible, debasing influence of the saloon and the roadhouse is too disgustingly apparent, and I make the observation here that society must pay the price for permitting the existence of these highly objectionable places.

May God be praised for a judge who does not hesitate to come out so plainly and square-footed against the saloon; and may he grant that no petition to have them pardoned out just because they have money may be forthcoming.

Gleanings in Bee Culture

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Editorial

WATER-BOTTLES AND HARD CANDY FOR MAILING QUEENS.

WE are now continuing our experiments in supplying queens by mail by the use of little tin water-bottles. So far the results have been highly satisfactory. We will make no positive predictions at this time; but we believe that the use of water in our mailing-cages will enable us to use a hard dry candy. It will be much more satisfactory than any of the soft candy, for that is liable to be too soft, and run out of the candy-holes and daub the bees.

MOVING BEES BY WAGON WITHOUT CLOSING THE ENTRANCES.

THE conservative Mr. Doolittle, in his regular department in this issue, recommends moving bees by wagon without closing the entrances of the hives, even when the motor is a horse, and he is right. When the entrances are left open there is no danger of suffocation; and even during hot weather bees will not cluster out much if the moving be done toward night or early morning. Of course, when the automobile truck is used there is no danger of bees getting out and causing trouble.

MADAM MAETERLINCK PREACHING THE USE OF HONEY IN COOKING; HONEY-CURED HAMS.

IN these columns we have already referred to Madam Maeterlinck, the wife of the great Belgian poet, Maurice Maeterlinck, is an enthusiast in regard to the use of honey in cooking. We have already given one or two of her recipes. A number of her fine recipes are being circulated through many newspapers of the country, together with a writeup on Madam Maeterlinck and her views in regard to honey as a food. These articles are ably written; and as the recipes are all good they can not fail to stimulate the use of honey to a great degree.

As is well known, in olden days honey was used as one of the materials employed in the curing of hams. One of Madam Maeterlinck's recipes mentions this. We give herewith the recipe in full:

To make it, a brine is formed of four pounds of coarse salt and an ounce of saltpeter; two pounds

of honey and two gallons of water. All the ingredients are well blended and poured over the hams, which are permitted to rest in the honied brine for six weeks, when they are found to be marvelously saturated with a flavor that is truly indescribable.

OUR COVER PICTURE.

THE view on the cover for this issue is from a negative originally made by W. Z. Hutchinson. It shows a method of protecting hives by means of a super filled with packing material, and building paper wrapper around the brood-chamber. This is a plan that gives satisfactory results in a locality where the winters are not severe, where the temperature seldom goes down as low as zero, and then for only a few hours.

Better results are secured if another piece of paper is properly wrapped and folded over the cover lapping down over this under piece so as to shed the water. Otherwise the rain will run down the side of the super and thoroughly soak up the hive-body, and keep it wet. Tacking strips of lath along the upper edge of the paper helps to shed the water, and does very well for spring protection; but another piece of paper over the cover lapping down over the brood-chamber is better still. A very wide piece of paper will answer for both if, after being folded down over the cover, it will extend to the bottom-board. Where it is impossible to obtain paper wide enough we advise the use of two pieces, as above mentioned.

THE AUTOMOBILE TRUCK FOR OUT-APIARY WORK.

ON page 775 of this issue will be found a reply to R. V. Cox as to the value of an automobile truck for out-apiary work. We may say in this connection that the machine has not only proved its value in beeyard work, but it has been used to good advantage in delivering honey to the city markets. We have used it in carrying exhibits from fair to fair; in making quick trips over long distances. One day we drove it over one hundred miles.

The great advantage of the automobile truck for the beekeeper of 500 or more colonies is that it will deliver his honey clear up to the door of the consumer or to

the store of the retailer. When honey is shipped by freight to the city markets it then has to be carried by a careless and indifferent truckman to the consignee. We find in some cases that we are able to deliver honey cheaper by automobile than we can by freight. Another thing we are beginning to see is automobile trucks from the city, loaded with freight for our suburban towns—especially those towns that are not reached by railroads. The only thing that seems to be a necessity are hard stone roads. A community that has not gumption enough to have roads that are good the year around ought to be left out in the cold.

WHY IS SWEET CLOVER HAVING SUCH A BOOM IN OKLAHOMA AND KANSAS?

A. I. ROOT has been inquiring why there seemed to be such a big demand from Oklahoma for our sweet-clover pamphlet. As we made a trip through both Oklahoma and Kansas last winter, perhaps we can answer the question. Kansas especially has been a great corn State. The farmers there seemed to have the impression that they could grow nothing but corn and buffalo grass. In later years they have discovered that alfalfa grows well on low lands next to the little creeks and rivers; but it will not grow on the uplands. They are just beginning to discover in some sections of Oklahoma and Kansas that sweet clover will grow on these same uplands where formerly buffalo grass would be the only thing that seemed to thrive. The result is that the farmers in those States are finding out that sweet clover is going to enable them to make use of their poor lands that heretofore have yielded but scant returns. After these uplands have been inoculated with the bacteria, sweet clover will thrive and yield luxuriantly. Well, these same farmers are turning their stock—sheep and pigs—on these sweet-clover uplands, with the result that stock-raising is beginning to develop to a proportion that is going to mean the emancipation of much of these bad lands that hitherto have been almost useless.

SWARMING NOT CONTROLLED BY RAISING THE HIVE UP ON FOUR BLOCKS; CARNIOLANS INVETERATE SWARMERS.

Two or three of our correspondents, particularly Mr. Foster in this issue, do not believe it is advisable to place too much dependence on raising a colony up on four blocks to check or control swarming, as shown on pp. 593 and 610, Sept. 1st issue. Probably much will depend on the strain of bees and the supplementary management. We regard Mr. Vernon Burt as one of the

best beekeepers in the country. Any one who will talk with him for a while will be convinced that he is not only on the job, but knows it from start to finish. He has been using this scheme for swarm prevention for the last two years—years when we have had at our own yards some unpleasant experiences in shinning up trees after swarms. We tried the four-block method at our Carniolan apiary, but it apparently had no effect. As a matter of fact, every thing we tried failed; and we came to the conclusion that, when conditions generally are favorable for swarming, the Carniolans will swarm in spite of us. In this locality we do not regard them as satisfactory for the production of comb honey as the ordinary leather-colored Italians. They will breed up earlier, and work earlier and later in the day; but, my, oh my! this very breeding aggravates the swarming problem later on; and when Carniolans start to swarm you may reasonably expect they will not do much else in the way of honey production that season.

THE ADVANCE IN THE PRICE OF HIVE LUMBER; HOW LABOR HAS ADVANCED; COST OF HIVES NEW AND OLD.

IN this issue, page 750, Mr. P. C. Chadwick calls attention to the steady advance that has taken place in the price of hive lumber during the past 20 years. What is true in California is more than true in other parts of the United States. A few days ago a subscriber, noticing that the price of bee-supplies was going to advance this year, complained, saying he thought it was unjust and unnecessary. This complainant probably failed to take into account the advance of the cost of living, the cost of labor, and the cost of general commodities during the past six or seven years. Nearly every thing has gone up—so much so that it is a real problem how to make ends meet. The wife of a workingman is obliged to figure much more closely than she did ten years ago, because the wages of her husband, although they may have advanced, are not yet quite up to the relative advance in the cost of living.

If it costs more to build a house now than it did ten years ago, it is reasonable to suppose that it would cost more to build a hive, because to a great extent the same class of labor and material is employed in each. As Mr. Chadwick points out in the article referred to on page 750, the price of second-hand hives to-day ought to be worth nearly the price of new ones. While hives ten or twenty years ago cost less, the natural depreciation during that period nearly balances the appreciation in the value of mate-

rial and labor entering into the newly made goods; or, to put it another way: A house built fifteen or twenty years ago for \$1500 is still worth nearly that amount in spite of the wear and tear and depreciation, because a new house like it can not be built to-day for less than \$2500.

As Grover Cleveland once said, "We are confronted by a condition and not a theory." We may complain about the advance in the price of the cost of living, but the fact remains that the cost of nearly every thing has gone up, and why not bee-hives?

After writing the foregoing, we ran across an item in the Oct. 23d issue of the *Cleveland Plain Dealer* that is very much to the point. Here it is:

TELL HOW COST OF BUILDINGS GROWS; EXPERTS GIVE FIGURES ON CONSTRUCTION AT REALTY BOARD LUNCHEON.

Cost of dwelling construction has increased 15 per cent in the past four years. Cost of building factories and other large structures has risen 17 per cent in the same time. These statements were made to the Real Estate Board at its weekly luncheon yesterday. Arthur P. Cody, real-estate man, explained the increase in the cost of building houses, while Lawrence Slatmyer, associated with his father, Henry Slatmyer, in the contracting business, told of the cost of erecting large structures.

"Carpenters twenty years ago were getting 17½ cents an hour," said Cody. "To-day they are getting 50 cents an hour."

The difference between the increased cost for dwellings and that for larger buildings was attributed by Slatmyer to the fact that a large amount of unskilled labor is employed in excavating for and erection of the latter, and that this labor has had an advance of 20 per cent in wages during the past four years. He pointed out that the average increase for all kinds of construction has been about 5 per cent a year. He declared that a factory building erected four years ago which cost \$62,681 to-day would cost \$73,779.

THE MILLER SMOKE METHOD OF QUICK INTRODUCTION.

WITHIN the last few days we have introduced sixty or more queens into as many colonies by the Miller smoke method. The weather during this time has been hot, cold, chilly, wet, and bright. Three or four colonies, on account of our difficulty in being able to get queens in time, were queenless so long that they had developed laying workers. However, we used the method described by A. C. Miller on page 370 of the current volume, and every queen was successfully introduced, *including the three colonies of laying workers*. It is well known that the ordinary method of introducing fails with laying workers; but the smoke method seems to be a sure thing in season and out of season with all kinds of colonies, whether queenless or not.

Here is the experience of another that is worth recording at this point:

I had a colony of bees that bothered me all summer. Early in June they lost their old queen and

failed in getting another. A cell hatched, but evidently the queen was lost in her virgin flight. I did not discover that they were queenless for more than two weeks; and as soon as I did I tried to introduce a queen by the cage-and-candy method. I tried this and failed. Then I tried to give them mature cells, but they would not accept them. I next gave them two frames of brood; but by this time there were laying workers in the hive, and they would not build cells. About the middle of August I wanted one of my mating boxes that already had a laying queen in it that was clipped. I did not care about this queen, so I thought I would try to introduce her into the hive that I have mentioned, by the smoke method recommended by Mr. Arthur C. Miller, p. 370, June 1. The next day I looked into the hive and found my clipped queen. She had been accepted, and had nearly filled one comb with eggs. At this date, Sept. 10, she has the hive well filled with brood.

A. S. KINNEY.

South Hadley, Mass., Sept. 10.

"Why, the other day," said our apiarist, Mr. Marchant, "by error I introduced by the smoke method a queen in a hive where there was already a nice laying queen. Would you believe it? they accepted the introduced queen and killed their nice layer! What do you think about that?"

If this method shall continue to be as successful as it has been with us during the last six months we shall recommend it exclusively, and, what is more, it will be possible for queen-breeders to sell virgin queens. Heretofore the business of selling such queens has been unsatisfactory, in that the recipients were not able to introduce them by the ordinary caging plan. But the Miller method makes a sure thing of it. A virgin can be had for about half the price of a laying queen. It will thus be possible for thousands of beekeepers to avail themselves of choice stock from our best queen-breeders at a very low price, and then have that stock crossed with their own vigorous strain. Truly this will be a great step forward.

THE SMOKE METHOD OF INTRODUCING IN ROBBED-OUT COLONIES.

After dictating the foregoing the following letter came to hand. As it describes a condition where the smoke plan of introducing was put to a severe test, we give it right here:

When I saw the article in *GLEANNINGS* by Arthur C. Miller in reference to direct introduction by the smoke plan, page 370, I was very much pleased, and at the same time had my doubts whether it would be a success. Nevertheless I made up my mind to try it. Having found one of my colonies hopelessly queenless, and having tried every thing I could think of to get a queen in without any success I ran a laying queen in on the Miller smoke plan. After I had opened the entrance about an inch the rest of the bees began to rob this hive, so I closed the entrance up tight and left it closed until very near dark, and then opened it about an inch. The next morning the robbers were as bad as ever, so I made up my mind to let them finish it up, which they did; but, remarkable to relate, the bees that belonged to the hive stayed there, and the next day were carrying pollen. I looked in the hive and found them all right, with the queen that I ran in laying finely.

This I consider a success under the most difficult circumstances.

Muncy, Pa., Aug. 23.

W. P. MERRILL.

A GREAT SCHEME FOR WINTERING; MOVING CARLOADS OF BEES FROM THE NORTH TO THE SOUTH DURING WINTER, AND SECURING TWO CROPS OF HONEY AND A HUNDRED PER CENT INCREASE.

FOR some years back we have had a dream of moving bees from the North, just at the approach of winter, to a southern clime, where they can gather a part of their own food, and at the same time build up for increase. We expect to move a carload of bees from Medina to a location which we have bought of Mr. A. B. Marchant on the Apalachicola River, Florida. This yard will be situated remote from any other bees, at a point where it can secure the early ti-ti and (later on) the tupelo in March and April. We plan to put 300 colonies in a car, and with them take about 300 hives in the flat, with necessary frames and foundation, and a power extracting-outfit. We aim to build these 300 single-story colonies into two-story from the ti-ti and other early bloom. In order that they may have plenty of pollen we are selecting our combs having the most of it, and putting them into the hives. Pollen in combs, by the way, is a splendid asset for the bees. We are feeding up only enough to land the bees in Florida in good condition. On arrival we will feed if necessary. If not, we shall expect them to get their own bread and butter, and go into the business of raising baby bees. In order to get a bumper crop from tupelo it will be necessary to have rousing big colonies. The whole scheme, in brief, is to build these single-story colonies into two-story ones, secure the crop of tupelo honey in March and April, and, when tupelo is over, split up these 300 two-story colonies into 600 or 700 single-story colonies; load them in two or three cars, and arrive in Medina for the early fruit bloom. A man who is thoroughly familiar with the Apalachicola regions will go with the bees—Mr. Ernest Marchant, who has been in charge of some seven apiaries for us during the past season. He believes he can take the 300 colonies to the Southland, where he was born and reared, and where he knows the locality thoroughly, build them up, and come back with twice the number of bees, and it is not impossible. He figures that the tupelo crop (if we get it) will pay for the cost of the experiment, and give us, with the bees left at Medina, a total of something like 700 colonies by the first of May. If Mr. Marchant were not thoroughly familiar with the conditions in the Southland there would be a great deal

of risk; and there will be risk as it is. We expect to give occasional reports of how the plan works; for if it succeeds there is no reason why any beekeepers in the North can not increase their investment in the same way. For example, Mr. R. F. Holtermann has a capital of some 600 or 700 colonies—that is, capital that is tied up for seven months in the year, barely maintaining an existence. During that time they will consume a large amount of sugar syrup or honey. Now, then, suppose he takes this capital, goes south with it, builds the bees up, secures a crop of honey, then comes north, ready to take another crop. It is not impossible. Our two carloads of bees a year ago this spring secured a crop of tupelo honey on the Apalachicola River, and then came north and secured a fine crop of clover and basswood. In other words, the same colony (not the same bees) will be on the job practically ten months of the year instead of four or five as now.

As already stated, we bought out a location on the Apalachicola River that has already made good. It is remote from any other beekeepers; and even if foul brood should develop, which is altogether unlikely, there will be no danger of transmitting the disease to other apiaries. All of our bees in and near Medina have been thoroughly inspected by our State inspector; and when next May arrives, all our bees in the South will be moved northward. Experience shows that we can move bees from Florida to Ohio for a little less than \$1.00 a colony. This includes freight and all other expenses of a man accompanying in connection with the moving.

Of course, this whole scheme may prove to be a grand fizzle. There may be a failure of ti-ti and tupelo; there may be a failure of pollen, and that would be as serious as no nectar. The weather might be bad. A flood might sweep the bees into the river; a railroad wreck might play havoc with the whole proposition; a thousand and one things might happen. They are all possible; *but we are going at this thing as if we were going to succeed.* Our experiment of securing two crops, one in Florida and one in Ohio, with two carloads of bees two years ago was a success. Mr. A. B. Marchant secured the tupelo honey before he delivered the bees to us. We moved them north, and caught the clover, and made 50 per cent increase. This time we hope to catch both crops, north as well as south, and get 100 per cent increase to boot. It's a great scheme if only *half* our dream comes true. In the mean time our readers shall have the benefit of the failure or success by reports from the field.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

THE tariff on honey is now ten cents a gallon instead of the old rate of 20 cents. I don't believe the change will make much of a dent in the business.

C. F. BENDER has given the key to a troublesome puzzle. The Root Co. found that it killed queens to keep them in cages of wire cloth not painted, and I never found any harm come of it. Mr. Bender explains that the Root Co. used galvanized wire cloth, while I used bright tinned wire cloth.

"OTHER things being equal, the highly fecund strain will produce a proportionately large amount of surplus," p. 605. But the trouble is that "other things" are *not* equal. At least I think that has been the rule here. When I've found a queen of fecundity above the average, industry or some "other thing" has not been equal to the average, so that, while a fourth more brood has been reared, a fourth less honey has been stored.

A. I. ROOT, let me endorse your advice to take care of the teeth, p. 657. Especially does that apply to the young. When I was a youngster I got into the habit of brushing my teeth, and now at 82 I have 29 fairly serviceable grinders, and ready for a chewing match with you any day. If you young folks can't brush your teeth after each meal, at least brush them after the last meal of each day, and not allow food to be decaying all night long between and on your teeth. Then you won't need store-teeth at 40 or 50.

LOUIS H. SCHOLL, p. 615, speaks of the loss of time caused by many bees foraging over the same ground near a large apiary, and others having to go a great distance from home. I wonder just how much bees crowd one another. It seems natural to think that near home it would always be crowded; but is it? If a piece of honey is thrown out, the bees will crowd upon it, but do they crowd upon the flowers? And if not, what wonderful knowledge is it that tells the bees just how to distribute themselves over the ground so as not to crowd?

G. M. DOOLITTLE, aren't you letting the drones off a little too easily, p. 603? A square foot of drones occupies the same square space as a square foot of workers, but you forget the thickness. I've just measured a new comb containing sealed drone brood, and it is $1\frac{1}{4}$ inches through. A similar worker-comb was 1 inch through. That makes drone-brood occupy 25 per cent more cubic space. Add to that the 14 per

cent longer time that drone-brood requires, and it makes a square foot of drone brood cost 39 per cent more than a foot of worker brood.

"HAS it been proven beyond doubt that there is any advantage in cutting alfalfa before it comes into bloom?" p. 633. I don't know how it is out west, but I do know that there is no doubt about it here. Wait till it is all in bloom before your first cutting, and the young shoots from the bottom (which shoots make your second crop) will have grown so high that they will be spoiled at first cutting, or else you must set your sickle-bar so high that you will not get all of the first crop. Besides, I think that, if you waited for full bloom at each cutting, you'd get about one crop less in a season, and so less hay. It is not believed here, as stated on p. 656, that cutting before bloom gradually reduces the tonnage, and eventually kills the plant altogether. The thing most blamed for killing is the failure to apply periodically a dressing of two tons of ground limestone to the acre. [We shall be glad to get more light on this question. Perhaps some of our subscribers in the West can give us the information. If so, our columns are open.—ED.]

MRS. Y. N. WESGATE asks, p. 620, whether some man can't devise an easier way than wiring frames. Why not try foundation splints? With them I don't use wire at all. [Foundation splints are perfectly satisfactory for the prevention of sag in foundation or in combs. We know that combs, even after they are drawn out, have a tendency to stretch vertically. This stretch occurs usually in very warm weather during a rush of honey. Splints will stop the elongation of cells on a vertical line; but they will not prevent combs from falling out or breaking out, during the rough handling of extracting time, like wires attached to the frame. You are a comb-honey producer, and, of course, experience none of the troubles of the man who produces liquid honey; but if you go into some large extracting-yard where combs are being handled in a wholesale way we believe you will become convinced that nothing short of wire secured to the frame itself will be satisfactory. Some one, perhaps yourself, suggested having the bottom-bar split so the splints can be placed between. If both top and bottom bars split so that the splints can be rigidly secured to the frame, they might prove satisfactory to the extracted-honey man.—ED.]

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

A few days ago I was surprised to see a bee down on the ground busily working on the fallen bloom of the date palm. There were dozens of them up on the bloom stems, but this fellow was evidently finding something to pay him for his labor among the fallen thousands.

* * *

I have just enjoyed a visit from my friend M. H. Mendleson, of Ventura. I doubt if there are a dozen beekeepers in the United States who are as well informed on all lines of the industry as he is. With over forty years of constant work he has had an experience that the majority of beekeepers will never enjoy. He has faced the ups and downs with the seasons; is an experienced producer of both comb and extracted honey, and has buyers standing with cash in hand for his comb product. His honey has won its reputation on merit. It takes years of careful work and honest dealing to gain such a reputation.

* * *

In the Aug. 1st issue I read of the capture of two swarms by J. W. Stine, one in a nail-keg and the other in a sack. I have frequently carried swarms in a sack, but about the most novel scheme I ever knew of being used was by a young lady returning from town on horseback, without a thing in the nature of a receptacle to put a very large swarm in that chanced to be on a bush by the roadside. After some deliberation she decided to make a hiving-bag of her petticoat; so she loosened it, stepped out, tied a string tightly around the top, then slipped it over the bush and swarm, tied another string tightly below the cluster, broke off the bush, and went home with her prize.

* * *

I was much interested in Wesley Foster's account of how his Uncle Oliver soaked his hive lumber in oil before nailing. There are a few of those old timers who believed in doing things thoroughly, with the idea that it would pay, and they were correct. Many beekeepers in this part of the State will remember my uncle, J. K. Williamson, who was a beekeeper for over twenty years; but who is now located on a small ranch in Mendocino Co. He always soaked the ends of his hive pieces in linseed oil, and carefully painted all joints before nailing. Many thought it a waste of time and money, but I am now using some of his hives that have been in use for twenty years. They are still in excellent condition.

THE ADVANCE IN THE PRICE OF HIVE LUMBER.

There was a period in the history of our country that might be called the virgin-soil period. That period has about passed, and is giving way to modern methods. This period includes the period of the virgin-soil farmer who could raise good crops with very little equipment or expense, because the soil would produce year after year if the farmer would only keep the weeds down. But now the soil is becoming worn out, requiring crop rotation and scientific methods of treatment. With modern methods of handling a crop, much more machinery is required than of old, enabling the crop to be handled quickly and cheaply. How about beekeepers? I wonder if there are not many of us who are virgin-soil beekeepers. We get along well while the seasons are good and every thing is prospering, there being little to do but to extract and to melt up the wax; but in a season like this, when the supply of bees as well as the stores are small, and the colonies must have individual care and careful watching, we begin to wonder if it will be worth while to spend money for feed for the bees.

The virgin-soil farmer is feeling the same way, for he too is being forced to give much more care to the old farm than when the crops came regularly with little effort. Do not let the bees die. If you have neither the time nor inclination to give them the proper care, why not sell out and save yourself a loss? Does the average beekeeper know that the hives that he purchased a few years ago are worth more now than when they were new? I met a friend on the street yesterday, who is the manager of one of our local lumber-yards. After a short conversation I asked him the price of various kinds of lumber, and his answer took me greatly by surprise. Sugar pine that a few years ago sold for \$30.00 a thousand is now worth over twice that amount; clear sugar pine that my uncle paid 6 cts. per foot for four years ago for hive covers is now selling for 15 cts. a foot. Hives, if they have been well taken care of, are worth twice what they were a few years ago; and those who think of selling their bees and location with the idea of starting in new, would do well to figure closely on the cost, lest they be fooled out of some money. A few years hence our present methods will be considered antiquated. The time will come when apiculture will be taught in all agricultural colleges, and the science of the business will be one of the features of instruction.

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

For the past week I have had the unusual spectacle in my apiaries of seeing great clusters of bees hanging out over the fronts of the hives. I have never seen this before in October, and may never see it again. The unseasonable heat is, of course, responsible for this, and in colonies that had been fed heavily the bees were outside of the hives as in hot midsummer weather.

* * *

In my notes for Oct. 1 I said that nearly all parts of Ontario had the long prevailing drouth broken by copious showers. This was true at the time of writing; but the few showers that came at that time ended abruptly, and since then no rain has fallen. At this date (Oct. 10) every thing is as dry as a bone, and we have been having torrid weather, with temperatures up in the eighties—an unusual condition for October here in Ontario.

* * *

Most of my feeding is done, but there are a few colonies yet to feed. These were examined to-day, and in every case the queens were starting quite a large brood-nest, only eggs and very young larvæ being present, showing that the unseasonable weather is responsible for this condition. Too warm weather at this time of the year is not the best thing for helping wintering conditions in our latitude; but quite likely we shall soon get an extreme change, and this late brood-rearing will then be checked.

* * *

Secretary Pettit reports that the Ontario Beekeepers' Association now has over 1300 members. An aggressive campaign in the way of organizing new county associations is largely responsible for the large increase in membership, as the majority of the members of the local associations join the Provincial association too. Whether the usefulness of the association will increase in proportion to the increase in membership is a question; but according to the old motto, "In union there is strength," the more powerful the association is in numbers, the greater chance it should have in the matters of securing legislation and in forwarding other interests necessary for the industry. That work of that nature should be expected of the association in the future more than in the past is the opinion of many.

* * *

The convention of the Ontario Beekeepers' Association will be held in Toronto, Nov. 18-21. Of course we are expecting a

large attendance, not only from Ontario but from the States across the border. All the counties near Toronto have this year had a fine crop, and this will, no doubt, be a stimulus to many to attend, who otherwise might not put in an appearance. It is needless to say, the officials of the association are very anxious for a good attendance, and certainly anticipate having a pleasant and profitable reunion. A hearty invitation is extended to our friends "over the line" to come and visit us; and it will be a genuine disappointment if a number of them do not put in an appearance. The convention is at a time of the year when beekeepers, as a rule, are not busy. So, pack your grip and take a trip to the Queen City of Canada, not forgetting to bring your wife with you.

* * *

Some time ago I noted that Mr. McKinnon, of St. Eugene, Ont., claimed that his Italians worked as far away as four miles from home. In common with previous claims of this nature on the part of others I rather doubted the truth of the matter, for while I would not question Mr. McKinnon's veracity, yet I felt that there was a possibility that he might be mistaken. Just a few days ago he wrote me that he would like to have me there to prove that he was right; that at that time his Italians were cleaning up a batch of blacks about four miles away, and, in addition to this, they were cleaning up the honey from a bee-tree that had been cut down, which was $3\frac{1}{2}$ miles distant. I think I shall have to admit that his claims are correct; but for the life of me I can not tell why my bees acted differently some years ago. At that time there was an abundance of buckwheat about four miles distant; and while bees in that district would store a surplus our bees would not get a smell of buckwheat, and there were Italians in the apiary from different breeders in the States, some of Doolittle's strain at that, and you know friend Doolittle is right in line with Mr. McKinnon on the question of bees going a long way for nectar. While on this subject I must frankly admit that this year we had bees travel four miles; but it was under conditions different from those we have ever had before. The Lovering apiary is two miles from the water, and the bay is two miles to the opposite shore. Thousands of bees flew across this stretch of water, and I rather surmise that, in case of a head wind blowing against loaded bees, this long fly over the water would be detrimental rather than otherwise.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

Fair time comes too close upon the honey crop to give beemen time to exhibit as they should; but the advertising of honey is a matter that needs serious thought.

* * *

Bees were poisoned badly this year in Delta Co. and parts of Montrose. Little of this seems to have come about by spraying in blooming time, but the late sprays falling on clover when the bees were working on it caused the trouble.

* * *

If a number of nuclei are started during midsummer they are always very handy when fall comes, to use in strong colonies that are queenless. I always have a few queenless colonies in September and October, and these nuclei save the day in very good shape.

* * *

PECULIARITIES OF THE SEASON.

This year colonies of bees occupying two full-depth Langstroth bodies had, without exception, more brood sealed and hatching than single-story colonies. It seems to be during late September and early October almost an invariable rule that colonies occupying single bodies had little if any brood. Many had a patch of eggs, but no larvæ or sealed brood, showing that the queen apparently had difficulty in shutting down her egg-laying. Colonies with young queens of this year's rearing have more sealed brood than the others. Our fall flow has been better than common; breeding has been ample, and our colonies will go into winter with good stores, and large numbers of young bees.

The last two weeks have brought us several very good rains, and killing frosts have been later than usual. Sweet clover and alfalfa have been wonderfully helped by these late rains. These rains have been in the valley; snow has fallen on the mountains in some parts of the West, so that prospects for next year look encouraging. The late rains will also probably destroy many of the grasshoppers' deposits of eggs in the ground. Dampness is very destructive to them.

* * *

GEORGIA VS. COLORADO.

It is interesting to read of Mr. Wilder's success in beekeeping in Georgia, when one of our largest and most successful beekeepers in Colorado came from Mr. Wilder's country because there were no opportunities

there. He told me recently that he probably would have done as well to stay in Georgia. What we should like to know of Mr. Wilder is whether there is flora enough to support several hundred specialist beemen with three hundred to three thousand colonies, or will Mr. Wilder own all the bees and have all the capable beekeeping timber among the darkies working for him before some of the rest of us get settled there?

Two hundred thousand pounds of honey is nearly as much as we can produce in our county, and here it takes twenty-five men and a dozen automobiles to do it. But we raise comb honey almost exclusively. For fear that Mr. Wilder will get all the good beemen trailing toward Georgia, I will say that Colorado still has opportunities, and we have the climate, the flora, the *good roads*, and a fine class of people. Many beemen are making their living from keeping bees, and do not follow it as a side line.

* * *

SWARMING IN COLORADO.

This has been another swarming year, violating all rules of good behavior that we generally expect from "mile-high" bees. We lost a good many swarms, and the demoralization has caused the loss of a good deal of honey. The bees swarmed with or without cells or eggs in them. The only thing that seemed to prevent it was to kill the queen. We had to shin up trees as the editor of GLEANINGS did, but perhaps we had better success in catching the queen at the entrance as she came out. Even though only a virgin, I had very few get away from me. One needs to be quick if he wishes to catch a queen the minute she stops to look which way to take wing. If he misses a virgin on the first grab, the chances are that she will get away; and then if she is not caught there are probably other virgins with the swarm. But if I caught the prime swarms I did not have any second swarms, and very few of them did I have this year as it is.

The editor has come forward with an almost sure cure for swarming by the use of inch blocks. We in Colorado have been envied for our freedom from swarming troubles, but we had them this year and last. The plan of Mr. Vernon Burt is as old as the hills (almost), and is good; but, oh don't give it out as a cure or even a preventive! it will delay swarming sometimes until a few cold cloudy days come, and the flow lulls; then the bees tear down the cells, but the cool weather or the lull in

the flow is the preventive, not the blocks. I have used the blocks, and do yet; and I go further and shove the covers and supers backward and forward, and the swarms leave just the same. The ventilation surely helps, but I could have shown colonies so treated swarming by the dozen this past summer. Bees swarmed here right through August up to within a week of the closing of the flow, and we surely had a time with them.

* * *

MAKING INCREASE IN AUGUST OR SEPTEMBER.

In my Harmon apiary I had sixty extracting-bodies of full-depth Hoffman frames that were about full of honey. In my other apiaries, and also in the Harmon apiary, the bees were still swarming late in the season, so that I had available some fine cells for starting nuclei. I wanted a lot of young queens for what increase I got, so I started sixty nuclei in my Crosby and Superior yards of one or two frames each; and early in September, when these queens were laying, I took off my extracting-hives at the Harmon yards and hauled them to the nuclei apiary, giving one or two full sheets of foundation or empty combs for the queen to rear brood in to strengthen them for winter. The comb-honey supers were then coming off my surplus colonies, and most of these had more bees than they needed. True, many of these bees were old and worn out, but I used them just the same. I shook out one or two pounds of bees from one or more colonies into one of my tin covers, and over them tacked a movable screen cover. This gave the bees a space three inches deep and the size of the hive. In these covers I quickly moved a lot of bees to my nuclei in the other apiaries, and strengthened them. The moving was necessary to preclude the return of the bees to their own hives. The young queens had most of September for breeding up, and by this means I have been able to get some extra colonies of bees in prime condition for wintering.

* * *

BEEKEEPING IN THE PLATEAU VALLEY.

In the Plateau Valley beekeeping enters into diversified farming operations almost as much as alfalfa-growing. Nearly every farmer has his neat honey-shop close to the house. The apiary at one side or behind the house, some distance, is often a model of neatness. Few box hives are to be found in the valley, and foul brood is all but unknown—a small percentage only being found in the lower part of the valley around Molina and Mesa.

When I visited the valley early in September it was the rule to find the beekeeper-

farmer and his wife at work cleaning and packing comb honey ready for the market.

Comb honey is the sole shipping product of the apiaries, very little extracted being produced. The price secured has been from about \$2.40 to \$2.65. The honey is packed in 24-pound single-tier cases, with glass front or wood slides. Two grades are made, more attention being paid to weight than color. Considerable attention is given to finish in grading. The honey is sold through fruit associations at Palisade, Debeque, and Grand Valley, which are loading stations on the railroad, fifteen to twenty-five miles distant. The fruit associations charge 5 per cent for selling the honey, and pay for it when it is loaded into the car. They do not pay for the honey, however, until a sale is made, although they may have verbally contracted for it.

One thing I have noticed in various places as well as in the Plateau Valley: The produce dealers offer good prices for honey early in the season. The beemen haul in the honey to the warehouse, but the dealer or association does not generally sell until a car is about ready to load. Then if the price has fallen he tells the beeman that he can not pay so much for the honey. I have found this method altogether too prevalent. The beemen have ended this uncertain manner of dealing in some places, and it is time that it was ended in all. When one has an offer of so much for his honey he should clinch the bargain with a cash-down payment of fifty cents to a dollar a case, and then live up to the bargain and make the buyer live up to his.

The farmers, most of whom have some stock, told me that honey is their money crop. This is more generally true of the farmers in the Plateau Valley than in any other part of Colorado where I have been.

An incident will illustrate the prevalence of beekeeping. I went into the general store and postoffice at Plateau City to get a bill changed, and was handed a dollar among other change. It was so daubed with propolis that I could hardly see the eagle. Do you suppose the postmaster knew I was a beeman?

The winters are more severe in the Plateau Valley than twenty-five miles further down in the Grand Valley around Grand Junction, and the winter stores are more likely to granulate and cause winter losses. There is a great deal of waste land upon which sweet clover grows, which is the main reason for uniformly good crops. The greatest drawback, as I saw it, is in having to haul the supplies fifteen to twenty-five miles, and to haul the honey this distance to the loading station.

Conversations with Doolittle

At Borodino, New York.

MOVING BEES.

"I wish to know something about moving bees, especially the details connected with it, which are usually left out by those who write on this subject."

Much depends on how far bees are to be moved. In moving them to and from an outyard, from three to five miles away, I have been fairly successful—so much so that I never had any trouble by injury to the bees, to the horses, or to myself. I place the hives carefully on a spring wagon, just as they stood in the apiary, bottom-boards and all undisturbed, and cover them with a large canvas, such as is used to protect haystacks before their completion. In hot weather this way of moving bees requires a cool cloudy morning or the close of the evening. If the wagon is not overloaded, so that the springs hit, or the hives jostle together on a rough or stony road, the bees will hardly come out from the entrance.

Much depends on those who load the colonies. If they can not pick the hives up and put them in the wagon so carefully that the bees remain quiet, or nearly so, it is better to use smoke until the colony is subdued, and then put them in the wagon without even so much as stopping up the entrance, and drive off with them. Naturally one would think that many of the bees would leave the hive and go away; but only a few will do this. One year I moved some bees in this way about fifteen miles. I started out with them on the evening of a very sultry day, over a rough road. A neighbor had bought them in the month of June, just before swarming, when the hives were full of bees, and we had no trouble in moving them. The hives were set about six inches apart, so that the bees from one hive would not be liable to run over into the neighboring hive on either side. When we arrived with them the larger part of the bees were on the outside of the hives. They were allowed to stay thus until the early twilight, when, with the use of a little smoke, we had no trouble in putting them on the stands.

But when bees are to be moved long distances it is better to prepare for this by giving ample ventilation, which is an important item in the successful moving of bees where they must be confined to the hive. This is always the case where they are to be shipped through any transportation company. I find a rim three inches deep, the same size as the hive, covered with wire cloth, none too much; and if the colonies are very strong, four inches is better. Put one of these on the bottom and one on

the top, and fasten securely. After trying many kinds of fastening I have found nothing better than lath, such as is used in plastering houses. For length, cut so they will reach from the top screen to the bottom one, being a little "shy," so that the ends will not catch against other screens or any thing on which they are loaded. Use four to each hive, nailing one at each corner to both hive and screens, this making a most secure method of fastening firmly both screens and hive-bodies. It gives even the strongest colonies plenty of ventilation, and plenty of room and space to cluster away from the combs of brood. In this way little or no loss occurs to either brood or bees.

With ample provisions by way of honey I have shipped bees to many of the Western States, and some to California, or nearly across the continent. Some claim that water is necessary, and it might be for shipments across the continent during July and August; but so far I have never used any, and have had no loss reported. In the front end of the bottom screen bore a $\frac{3}{4}$ -inch hole when making the screens. This makes an entrance for the bees, and thus allows putting the screens on several days in advance of the day of moving. It gives the bees a chance, too, to fly when they arrive at their destination, just as soon as the hive is set on the stand they are to occupy. Under these circumstances the unpacking can be done more at leisure than would be the case if the first flight were to come with the unpacking. To stop this hole when moving, use a cork or plug. I generally get a lot of dry corneobs, pushing a piece of the right size in the hole, and twirl it around until it wedges in tightly. The frame for long-distance shipments should be securely fastened in the hives, so that they will not slide together nor swing. Where self-spacing frames are not used, pieces of lath of the length of the inside of the hive can be used to fasten the frames securely, nailing one at each end (on top) down through the end of each top-bar and the hive. The nails should be long enough to reach into the wood of the hive from half to three-fourths of an inch. Now tip the hive up on end and stuff old newspapers in the bee-space between the ends of the frames and the end of the hive. If the hives are to be moved by wagon it is important to load them so that the combs run sidewise in the box, as the greatest strain on the combs is from the box swaying from side to side. When shipping by railroad, the combs should run lengthwise of the car.

General Correspondence

REMARKABLE COMPETITIVE EXHIBIT OF BEES AND THEIR PRODUCTS AT THE CONNECTICUT FAIR, HARTFORD

BY BURTON N. GATES

A most remarkable and unique apicultural display is annually made at the Connecticut Fair, Hartford. It is by far the most spectacular beekeeping show now available in the East. The management has an abundance of enthusiastic material available in Connecticut beekeepers. The beekeepers have an exceptionally interested fair management and well-equipped fair building, 75 x 50 feet. There is, moreover, an aggregate of \$500 in premiums. Consider what this means to the promotion of the industry when upward of 150,000 people attend the fair.

The large electrically lighted building with electric signs, of pavilion type, and accessible near the entrance to the grounds, is apart from all other displays. (See Fig. 1.) Thus the apicultural display is distinctly a feature. In contrast it is to be regretted that the honey show at some fairs is frequently merely an annex to the fruit or flower shows, or even to the poultry exhibit, which, of course, makes it less distinctive. The illustration shows a few of the attendants and exhibitors.

At Hartford the competition is "open to the world," with this restriction—that competitors must be or become members of the

Connecticut Beekeepers' Association. This applies with exception to the section designated "Culinary," comprising cookery in which honey is used, and to the "Displays by Novices."

Another distinctive feature is that the premiums are offered and awarded by the Connecticut Beekeepers' Association, of which Mr. A. W. Yates is the present Chairman of the Committee on Fair. In this way the best interests of beekeepers are fostered; also the excellency of the display may be attributed to this provision. The Association, being incorporated, receives from the State a bounty for premiums, which accounts for the fact that, since 1908, when the Association began to make its competitive displays, the premium awards have advanced from \$35.00 to \$500. This is a surprising and admirable development in six years. The earnestness in the display of products is further maintained by a slight entry fee of 25 cents for each entry in practically all classes.

At the present display, made the week beginning September 1, there were upward of twenty competitors. The extent of the displays may be judged from the fact that there were approximately fifty colonies of bees and from eight to ten tons of honey on exhibition, besides displays of cookery, wax, and products not specifically called for in the premium list. Another feature of the Association's effort is the acquainting of the public with honey. Concessioners have for sale wax, honey in all forms, and honey sandwiches. It is estimated that the sales of concessioners may be as high as \$100 on the large days of the fair. A fee for space is required from each concessioner.

Still another feature which has especially interested the public is the daily manipulation of bees in a cage. Such demonstrations, as beekeepers know, attract large audiences. This handling of bees may occur several times a day, and is scheduled according to the attendance at the fair. The management



FIG. 1.—Beekeeping, Exhibit Hall, Hartford, Ct. The pavilion is 75 x 50 feet, with an open front. Some of the concessions are shown grouped in front.



FIG. 2.—The Concessioners' Exhibit at the Hartford Fair.

is also making a feature of the display of commercial supplies for beekeepers. Some of the concessions may be seen in Figs. 2, 3, 4.

The premium list is exceedingly liberal, and is a true inducement to the beekeeper to make a display. For instance, for each of the races of bees with their queen, three premiums are offered, being respectively \$10.00, \$8.00, and \$5.00. Liberal premiums are also offered for queen-rearing outfits, being \$16.00, \$10.00, and \$6.00. In the classes of honey, the premiums are respectively \$10.00, \$8.00, and \$5.00. For the largest and most attractive display of honey shown, the premiums are \$24.00, \$16.00, and \$8.00. Part of one of the large honey displays is shown in Fig. 4. The sums of \$10.00, \$8.00, and \$5.00 are offered as premiums for the best displays of beeswax, of which there must be at least ten pounds. A sweepstake of \$25.00 is offered. This was won by Mr. W. K. Rockwell, of Bloomfield, who also took first premiums on Italian, golden, Carniolan, and black bees, the best display of the different races, and the best display of queens in labeled cages. It must have been some satisfaction to Mr. Rockwell to realize awards amounting to \$130.00. Other competitors secured respectively \$71.00, \$61.00, \$43.00, \$30.00, and lesser amounts.

In the honey classes, Mr. H. W. Coley, of Westport, secured the first premium on the best ten sections of comb honey, the best section honey packed for market, the best candied honey, and the largest and most

attractive display of honey in general. An award of \$10.00, first premium, was made to Mrs. H. O. Havemeyer, of Stamford, on dark extracted honey. An award for twenty-four jars of chunk honey was made to Mr. C. H. Clark, of Cobalt, of \$10.00 as first premium.

The writer personally examined the entire displays, and can not but express satisfaction in the quality of the material exhibited, and the difficulty which the judge, Dr. D. Everett Lyon, must have experienced in making awards. The general excellence of the displays show that

the beekeepers have learned what competition means. But few restrictions are prescribed by the Association. As might be expected, exhibitors can compete for but one premium with the same exhibit, excepting, of course, sweepstakes. The honey, excepting candied honey, must be of the current season's crop; wax must not have been previously exhibited, and all honey and wax must be a product of the apiary of the exhibitor. The Association also emphasizes in displaying comb honey, the perfection of filling and capping, the neatness and completeness of cappings, and the general appearance for market purposes. More and more emphasis is being laid upon freeness of sections from propolis; therefore the beekeepers have learned to clean their sections. Extracted honey is judged for its body and flavor, clearness, cleanliness, and general appearance of marketability.

Inquiring of the management, the writer was told that, in the last few years, exhibitors have learned to avoid mistakes, and how to exhibit. Nothing like competition will bring about closer grading and selection of products. For instance, those who have had the most experience in displaying have learned to bleach their sections and grade them for evenness, in weight, capping to the wood, and color; they have learned to use new shipping-cases and bright sections. Moreover, the cases preferred expose the entire section. Sections of full worker comb, or the avoidance of drone comb, is another feature. The management also emphasizes

that all honey displayed must be glazed, or in cartons which are bee-proof. Consequently the type of carton with a peekhole or other opening through which bees can enter has been prohibited. The larger displays are made on glass shelves so that the light can penetrate on all sides. This is an important feature, and the exhibitors told the writer of their particular effort to avoid shading any part of their exhibits. Some effort is made to bring electric lighting to the rear of the displays of honey.

The management and individual competitors are agreed in an effort to vary from year to year their displays, thus avoiding monotony and adding to the general interest of this department of the fair.

Seldom are fifty colonies of bees seen in one competitive exhibition. It is expensive to show full colonies, and the writer raised the question how beekeepers could be induced, especially in the fall, to make such an extensive exhibit (Fig. 5). The reply was, "They are small nuclei." This is a far less tax on the colony, is no great expense to the beekeeper, and is not especially hard on the bees. To show full colonies would mean that there would be but few competitors. It is by using the nucleus, with about half a frame of bees, that this excellent and large exhibit has been made possible. It also enables the queen to be found early. It was noticeable, however, that but few of the colonies displayed drones. This was brought to the attention of the exhibitors, who agree that, in the future, one of the requisites in displaying bees should be the including of drones as well as the queens and workers.

In competition of the black bee, considerable discussion was created over the marks. Mr. Allen Latham emphasized in the true black type the absence of "chocolate markings," and, if possible, the blackness of the legs, especially of the queen. Throughout the displays of bees there was close competition. Some of the more unusual races, such as Cyprians, Banats, Egyptians, etc., were absent. The first prize



FIG. 3.—Arranged in front of this concession are shown some of the nuclei entered in competition at the Hartford Fair.

in each of the classes of bees was won by Mr. W. K. Rockwell.

From the educational standpoint, the peculiarly important feature of the bee show is Section 3, "Competition for Novices," in which it is prescribed that "no one previously exhibiting or receiving premiums will be considered in this department." These excellent provisions annually induce new beekeepers to come out for competition. While the premiums in this department for section honey, light and dark extracted honey, chunk honey, and two pounds or over of beeswax, are respectively lower, \$3.00, \$2.00, and \$1.00, it prevents the smaller or newer beekeeper from feeling that he has no possible chance of winning in competition with the more professional class; yet the novice, of course, is privileged to display in competition with the experienced beekeepers. Mr. Walter Beeman, of Bloomfield, seems to have been the important novice exhibitor this year, taking largely the first premiums in each class. Mr. J. E. Wallbeoff, Wethersfield, came in for the second premiums, largely. It has been noticeable in most honey shows that these excellent provisions for the novice are not provided. This is a marked step in advance for the promotion of interest in beekeeping.

While the culinary section of the exhibition was, perhaps, less extensive than the other departments, the judge is quoted as having expressed his opinion of the superiority of the honey muffins, cookies, cakes, canned fruit, and pickles displayed. The



FIG. 4.—One of the honey displays at the Hartford fair is shown at the rear, in front of which is grouped a collection of competitive colonies. The shelving for the display of honey is of glass.

exhibitors called special attention to the canned fruit, which in every way rivals fruits canned with sugar. It is to be regretted that beekeepers are not making more of this feature of the utilization of their product.

With the public, the sale booths, where honey-sandwiches are offered, seemed to attract considerable attention. The vender of these luscious sandwiches warns the novice salesman against possible disastrous results through a sudden influx of robber bees. The booths are specially constructed for handling the honey; being immaculate in appearance, the prospective purchaser is convinced of the cleanliness of his sandwich. The part of the booth where sandwiches are prepared is entirely enclosed with netting to prevent the access of "robbers." The secret of success is, of course, the prevention of the first robber bee from returning to the hive with a load. The sellers of honey-sandwiches elsewhere, to the writer's knowledge, have been forced to

close up their stands because robbing had gained such headway. Those selling honey at a fair can well remember the remedy for checking the approach of robbers. A weak solution of carbolic acid sprinkled about the booth will do much to repel them. Everybody being anxious to "see the queen," one of the calls of the honey-sandwich man is, "Come and see the queen!" He may have a queen in a mailing-cage or in a nucleus. Attracting his crowd by this means, he then induces them to try some honey. Tactfully, too, he urges the visitors to go among the rest of the displays. In this way many a person who is not familiar with the taste of honey acquires a liking for it. In talking with people around Hartford, the writer had but to mention the bee show when he was asked with enthusiasm, "Did you have a honey sandwich?" It is thus evident that the honey-sandwich is a key to the venture.

Amherst, Mass.

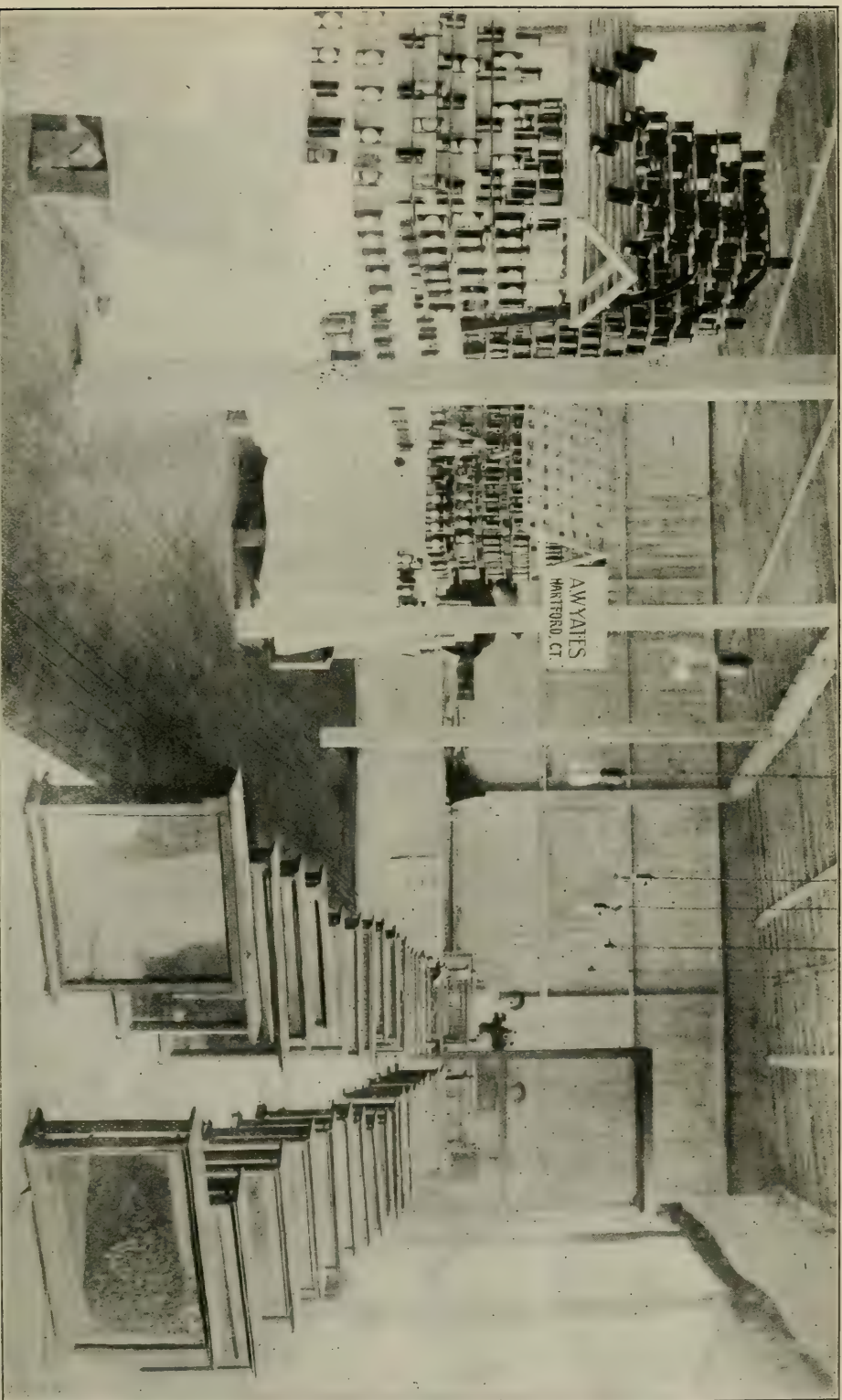
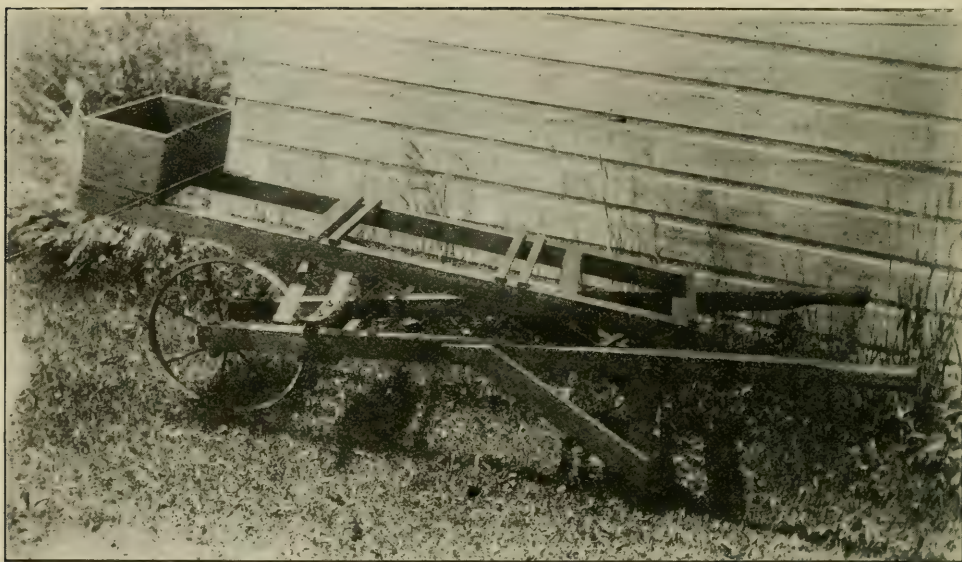


FIG. 5.—Another view of the honey displays shown in FIG. 4. A long range of about fifty colonies of various races is shown at the right. In the rear of these comparatively small displays is a demonstrational cage for the handling of live bees.



The spring wheelbarrow used by Ed. Swenson, of Spring Valley, Minn. Used for hauling bees and honey. The box in front is for carrying the smoker and tools.

FOUL-BROOD INSPECTION IN IDAHO

Some Interesting Details of a Bee Inspector's Life

BY W. E. RAMBO

Anent your account of foul-brood inspection in Ohio, p. 516, Aug. 1, a similar experience in Idaho may be of interest. I bought two colonies in the spring in box hives at half price, intending to transfer and build up a small apiary. I set standard hives on top of them till the queen should begin work. When that took place in one, I cut out the old combs and found a bad case of foul brood. This induced me to transfer the other colony at once. I found it still worse. The first colony produced a fine lot of sealed brood which became badly affected by hatching time, necessitating a second transfer. Both colonies are doing well now, but will accomplish nothing more than preparation for winter.

I began to inquire, then to suspect, that foul brood was very prevalent. I wrote the State Inspector. He sent Mr. E. J. Johnson, of Fruitland, inspector for District No. 6, which includes Boise County and the Payette Valley. I accompanied Mr. Johnson on July 21 and 22, mostly on foot. The experience was an eye-opener. Many colonies were in boxes. Many that were on loose frames had been put in without starters or foundation, and the combs so badly crossed that inspection was practically impossible. The law in Idaho condemns all such, giving the owner five days within

which either to transfer or destroy them. Of hives that could be inspected, over 10 per cent were found infected with foul brood. Here are figures kindly given me by Mr. Johnson:

In fifteen days' inspection, between May 28 and July 31, 965 colonies were inspected. Of these, 171 were condemned, being in box hives, and 103 for foul brood; 691 were passed. Those in boxes included nail-kegs, a wooden jacket from an oil-can, old tubs, soap-boxes, stick gums, etc. I suspect that many of these had foul brood. The common excuse for conditions was: "This goldurn swarm lit out there on that there plum tree, 'n' I jes' shuck 'um into that nail-kag. I don't know nothin' about 'em, 'n' I don't care a durn fur 'em. I jes' cal'ated I'd sulphur 'em in the fall and git some honey t' eat; but 'f your s' durn pertickler about ut, I'll jes' kill 'em right now. I can't do nothin' with 'em; they jes' sting me, 'f I go in a rod uv 'um, 'n hit's pisener 'n' rattlesnakes." Well, may be 10 2-3 per cent is not bad; and I suspect inaccessible hives will account for at least that much more. About 225 were transferred; 50 were burned; 110 places were visited, and the mileage was 385.

Mr. Johnson told me that he definitely knows of 1700 colonies which have not been inspected. Of course, there are many unknown. He passed by the larger apiaries which appeared to be well cared for, and where the owner knew and was fighting foul brood. He argued (rightly, I think) that

more danger is to be suspected in the small bunches stuck around farms and in boxes by people who have no knowledge of bees.

"But why neglect any?" you say. A passage or two from the State Inspector's notice to Mr. Johnson explains: "There being sixteen inspection districts in the State, and the money appropriated for this purpose having to be allotted to the different districts, your district was given the following amount for bee inspection for this year: \$150 for districts Nos. 6 and 7." Mr. Johnson understands this to mean \$75.00 for district No. 6, said district being perhaps one hundred miles long and a county wide, the Payette Valley alone being something like 10 x 30 miles. For lack of funds, Mr. Johnson has not seen half of the Payette Valley, and nothing at all of Boise County. Again: "I also note what you say in regard to there being no bee inspector in that district before. Heretofore there has been no request for a bee-inspector in that section. That is the reason why there has been no bee inspector in the past."

It seems a pity that foul brood should render beekeeping next to impossible here; for natural conditions are all but ideal for the business. The fruit-bloom begins by the first of April—very often much earlier. This is soon supplemented by dandelions; then white clover; then alfalfa; then white sweet clover. These three last till freezing weather, and are in abundance along the river banks and irrigation ditches, where they are kept perpetually green and blooming through the long season by reason of moisture at the roots. Alfalfa is usually cut when in bloom; but the borders remain, and it grows, like sweet clover, in all waste places. White clover is abundant, and never ceases to produce nectar, apparently.

Following is the performance of a single colony: On July 28 nearly half a bushel of hybrids were found on a fence-post in the edge of town. I was away from home, and my son hived them in an oil-box. We brought them home that night. July 29, near noon, I put them into a ten-frame hive with full sheets of foundation. July 31 the sheets were all drawn out, and partly filled with honey. August 1 the queen was laying in a limited space; frames heavy with honey, bees hanging outside at night. August 2, put on extracting-super with inch starters. August 8 queen laying in five extracting-frames which are almost fully drawn out and filled. August 9 removed two frames of honey, and replaced by two full sheets of foundation and put a section-super on top of the extracting-super. August 15, found the queen back in the brood-nest; put the section-super under the extracting-

super. August 21, brood hatching; August 26, working nicely in sections; brood-nest crowded with honey. August 27, removed the frame of honey and replaced with a full sheet of foundation in the brood-nest. August 29, bees seem crowded for room; put another super under the others.

Mr. Johnson returned on August 6 to check his former inspections and to inspect other colonies. This time he came with his wife in his automobile. He was able to take me and my wife and daughter all over the neighborhood. That night his auto stood in our dooryard, and, after having supper and an evening with us, they slept in a neighbor's house. The next morning he very kindly invited me to go home with him. The trip of about thirty miles was a great delight. We went by the "South Slope" fruit-farms and inspected a number of colonies—mostly in ramshackle boxes and gums. We met the proverbial pessimist, who declared his bees were all right, and that the inspection was a "graft" intended only to provide fat places for the "friends" of the legislators. But here is where Mr. Johnson shone best. He gave Mr. Pessimist no chance to get in a word, but talked him into silence, in the mean time digging out enough of his combs to illustrate his lecture on foul brood, and leaving his antagonist wide-mouthed with amazement and chagrin. From the fruit-farms we passed through a stretch of waste land, ruined by seepage and alkali. This changed near New Plymouth to splendid grain and apple country, which continues, I am told, all the way to the Snake River at the mouth of the Payette Valley.

THE INSPECTOR AS A BEEKEEPER.

Mr. Johnson is an old Colorado beeman. He moved to Washington a few years ago, but found conditions unfavorable. His home is now at Hillsboro, Oregon, where he spends the winters. But he moved his apiary to near Fruitland, Idaho, a few years ago. There he found two acres in sagebrush, with one canal on the north, another on the east, and the Payette Valley railroad on the south, with only the bank of the canal on which to get to the main road. This land was too high to be watered from the supply ditches, though it was almost level. Mr. Johnson bought it cheap, then cleared it; then got permission to connect a neighbor's waste ditch with the plot, so he has plenty of water free of charge. Then he widened the canal bank as far as he could go on the south side, and then bridged it, widening the north bank thence to the road. There he is in a picturesque, secluded spot, with great fields of alfalfa all about and with tangles of sweet clover along the canals and railroad. There he spends his

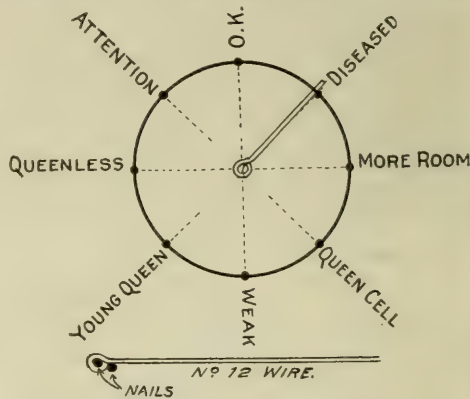
summers in a sleeping-tent; he has a shack with a kitchen, a cased honey-room, an automobile-room, and a general storeroom and workshop. He is an enthusiast with bees; has his own way for doing every thing, and violates most of the rules of the books. For example: He does not use queen-excluders; he says, "If the old lady wants to lay in the extracting-combs or supers, bless her heart, let her do so." In extracting, if he finds unsealed brood, he leaves it till it is sealed; then extracts the honey and distributes the brood to where it is needed in other colonies. He uses no followers or self-spacing frames or springs; wedges his sections in with wood from spoiled sections. In handling supers he does not try much to save bees. "A few bees smashed is cheaper than time." He has about 250 colonies, all hybrids. "The blacker the better." They are a mixture of almost every standard breed produced by the introduction of queens at different times. He says these hybrids are the best hustlers, and make the whitest honey. The stock for his apiary was formed by a lot of hybrids from southern Texas which he shipped to Colorado years ago. Some of Mr. Johnson's bees are as cross as hornets. They boiled out everywhere with their tails up sizzling with venom like rattlesnakes. He raises his own queens in nuclei formed from combs with queen-cells on them. These queens are of all shades imaginable. We found one whose head and thorax were clean of all hairs, polished, and black as ebony. That part of her looked more like a black beetle than a bee. The abdomen was of a brownish-yellow color with prominent black rings shading almost into each other along the back. Mr. Johnson said he had never seen a queen like her.

He boils his waste combs in a big tank. When cold he dumps the whole on the ground and throws the chunks of wax, dead bees, and slumgum into gunny sacks and keeps these in the shade of a tree until the season is over; then he renders all in proper manner, using the wax-press. He says the bees don't disturb the dirty cakes in the sacks.

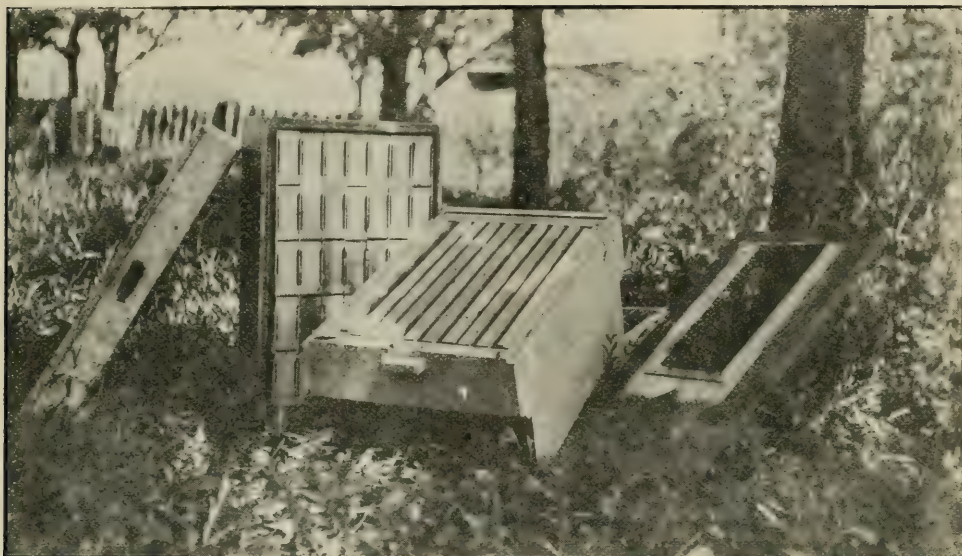
He put up arguments for the eight-frame hives that were unanswerable by an amateur like myself. His record for last year for 250 colonies was between 11,000 and 12,000 lbs. of honey, 5200 lbs. of which was bucket honey, composed of chunk and extracted. His comb honey was all sold to a shipper from California. The bucket honey was shipped to Portland, Oregon, and peddled out; prices were in the neighborhood of 12½ cents a pound all around.

I was very much interested in a device of Mr. Johnson's own invention. He calls

it an "Indicator." With the compass he draws a circle two inches in diameter on the back end of each hive. Through the center he draws a perpendicular and a horizontal line. At the intersection of these lines with the circumference, and also half way between said intersections he drives tacks, eight in all. This forms a kind of dial. For a hand he uses a piece of soft galvanized wire, No. 12. He bends a loop on the end of the wire by means of two headless nails driven close together in the bench. Then after the bend he cuts the wire something near an inch long and fastens it in the



center of the circle with a ¾-inch screw, tightening just enough to remain set in any position. Then he makes an enlarged chart to hang in his workroom for reference. On this he writes at every tack a certain condition of colony. Beginning at the top, for instance, he will write "O. K.," the next tack to the right will be "Diseased;" the next, "More room;" the next, "Queen-cell;" the next, "Weak;" the next, "Young queen;" the next, "Queenless;" the next, "Attention." For this device he claims the following advantages: 1. No book or pencil is required; tacks and circle can not be erased, and will show the same after the hive is painted. 2. It is not in the way in tiering up and shipping hives, even when the latter are taken apart and shipped in the flat. 3. Never wears out. 4. Cost for labor and material is only about three cents to the hive, and they can be made at home. 5. Can be used for any purpose, the chart being changed according to purpose or whim of the beekeeper, or for different seasons. In a large apiary, Mr. Johnson does each separate act on all hives before beginning the next act. For instance, he sets his compass and draws circles on all hives; then he returns and draws lines in all circles, then drives tacks in all; then fastens the wire indicators. I enclose an illustration of the device. Mr. Johnson says



Bottom-board with large screen-covered opening for providing additional ventilation in winter.

he has tried every thing, and likes this best of all. In use, he makes periodical inspections of his apiary, setting the "indicator" on each hive to show the condition inside. At the end he has only to pass through and supply the needs of each, having no concern for those indicated "O. K.;" and no hunting for records.

I was with Mr. and Mrs. Johnson from 4 P. M. till 2:30 P. M. the next day. They made every moment a delight. They are good Baptists, and spirited, whole-hearted people. Mr. Johnson says he will clear the Payette Valley of foul brood. They drove me in their auto to Fruitland for the evening train. As I sat by the car window and watched the panorama of field and orchard and canal and river and mountain rush by me I felt that God is good and life is sweet, and I had received almost a college education in beekeeping.

Emmett, Idaho.

WINTERING OUT OF DOORS WITH A SCREEN-COVERED OPENING IN THE BOTTOM-BOARD

BY J. W. NICHOLS

I was pleased with the quotation from Mr. Zander, page 204, April 1, as it was in the line I have been working for four years. The winter of 1909 I wintered a stand of bees in a hive with an opening in the bottom 6 inches by 12, covered with wire screen (as shown in the photograph taken the next spring); and as they wintered so nice-

ly, and did so well thereafter, I have used more of them each year since, until now I use no other; and the past winter I lost no bees, and they wintered on their summer stands with no other protection than a thin burlap on the top of the frame, and the super filled with crushed newspapers.

My hive, as you will see, has eight Langstroth frames, with a dead-air space on both sides, and half way down on the ends and rabbeted over the bottom at the sides. The entrance to the body is $\frac{3}{8}$ by 8 inches, with an entrance for the honey-flow, closed at other times, at the top of the frame $\frac{3}{8}$ inch by 2 inches. The super holds 35 sections, and is rabbeted over the body at the sides, and one super rabbets over the other. The top is 3 inches deep, with ventilators, and is rabbeted sides and ends to fit the super or the body. The roof is of $\frac{3}{8}$ -inch lumber covered with ducking, and painted. This roof is cool, never warps nor leaks, and my bees never hang out in summer, and seldom swarm.

TRAPPING HAWKS.

On page 242, under the head of "counting chickens before hatched," I notice the trouble with hawks. There is an old but successful way to trap a hawk. A hawk, before attempting a catch (as a rule), and always after an unsuccessful attempt to catch, seeks a point of observation. A very attractive one is a post in the fence higher than the others, or, better still, a single post in an open field a little distance from the fowl. We use a post as high as we can reach the top while standing on the ground,

and set a small steel trap on the post with a chain long enough so that it will staple to the post below the center so that, when the hawk alights in the trap, he will reach the ground and not tear loose from the trap, if he is caught by only one toe, which is often the case. The hawk, while shy of a gun, and wise in some things, looks not to his feet, and a trap set on a post needs no covering and no bait. The only objection is that we sometimes catch a useful bird that should not be caught; but we excuse ourselves by saying that one hawk in his lifetime will catch many such birds, and chicks and fowls that should not be caught. Dayton, Ohio.

TO PREVENT ROBBING WHEN FEEDING

BY DR. C. C. MILLER

A Virginia correspondent has trouble with robbing, and asks advice. He started feeding with the Boardman feeder, and when robbing began he stopped it by putting wet hay over the entrance. "Then," he says, "I ordered some division-board feeders and tried them, and every time I feed them they seem to go crazy and want to rob, and the combs melted down in one of my hives, and they got hold of some of the honey and started to rob worse than ever. I tried putting hay over the entrance, but it didn't do any good. Then I tried putting them in the cellar, and that didn't do any good. Then I piled hay all round the hives, and kept it wet for a good while, and they robbed through the hay. The strongest colonies make no attempt at defense at all, but the weaker ones will catch a robber every now and then, and give him a little roll. This is my first year at bee-keeping. I have eight colonies, and would like to save them if I can. How can I feed without starting robbing?"

That's quite a graphic account of a bad case of robbing, and will appeal to many an old beekeeper who has been through the mill himself. Only it's out of the ordinary that the weaker colonies make more attempt at defense than the stronger ones.

"An ounce of prevention is worth more than a pound of cure" is a proverb that applies especially to a case of robbing. Bees have no morals to speak of, and every bee is a potential robber. Most of them never find out that they *can* rob; but let a bee once get into its little noddle the knowledge that there is such a thing as getting in another hive stores piled up ready to hand, and it will risk—yes, and lose—its life in the nefarious business of robbing—nefari-

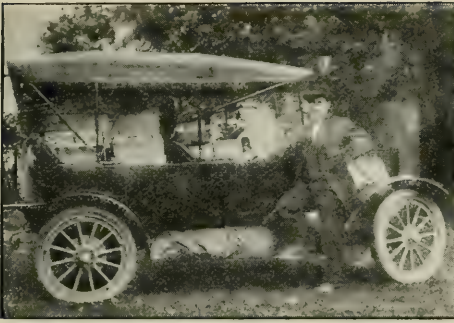
ous from the standpoint of the beekeeper, although not from that of the bee.

It's too late now to say just what should have been done, but it may do some good for the future, although one can only guess at some of the things you did or did not do. It would have been a little safer if you had used a Miller feeder. Being on top it does not present so strong a temptation to robbers as a feeder at the entrance or in the brood-chamber. Besides, it allows you to feed up more rapidly for winter.

It is safer to feed in the evening, after bees have stopped flying. By the time bees fly next morning the excitement will have died down, there will be less to attract robbers, and the bees will be in better condition to defend themselves; for when feed is first given to bees, they become excited over it, and seem to feel—at least sometimes—that when sweets are so very abundant there's no use to be mean about it, and so they allow free entrance to outsiders.

The wet-hay business is usually quite effective if begun early enough and the hay made wet enough. Possibly you failed on the latter point.

Putting the attacked bees in the cellar may do little or much good, according to management. If you merely took the bees into the cellar and then took them back again after a day or more, the gain is very doubtful. For when the robbers find the hive missing, they think they've made some mistake as to the location of their prey, and pounce upon one or other of the neighboring hives, merely transferring their activities there. Even if they should be driven out of these, when the cellared hive is returned to its place the change is quickly noticed by the robbers, and they renew the attack with vigor. So you must try to fool the bees. When you put the hives into the cellar, don't leave the stand vacant, but set on it another hive just like the removed hive in appearance, and in this hive let there be one or more empty combs, or combs with a very little honey. Then, instead of pouncing upon neighboring colonies, the robbers will continue their attention to this substitute hive; and after having cleaned the little honey there, if you have left any, they will become convinced there is no more booty to be had there, and will leave the hive. After they have given up their visits to the hive entirely, you may then return the colony from the cellar, in the evening, hoping that the robbers will not discover that the empty one is not still there. It may do some good to paint about the entrance with carbolie acid. Indeed, the carbolie acid alone will be a sufficient protection against robbing if it has not proceeded too far.



G. Frank Pease, of Marshall, Mich., with a load of honey, vegetables, etc., to take to the fair.

It is pretty generally agreed that it is well to make the entrance pretty small when robbing threatens or occurs, thus making it easier for the guards to protect it.

You have probably desisted from feeding now, for a time, and that is wise. When you begin again, if you have no Miller feeders you might use the crock-and-plate plan given in the book "Forty Years among the Bees" that you have. If there is danger of the weaker colonies being robbed when being fed, you could feed to the strong ones enough to have them fill some extra combs, and then give these combs to the weaker colonies.

Marengo, Ill.

MOVING AN EXHIBIT 50 MILES TO A FAIR BY AUTOMOBILE

BY G. FRANK PEASE

I am sending some pictures showing a load for the Kalamazoo fair. The load consisted of 800 lbs. of honey and bees, grain, vegetables, and fruit—about 1600 lbs. in all. The load was taken fifty miles and back. There was a heavy rain the night before I went, and the road was full of



A truck load in a touring car.

chuck holes; but I made the trip both ways without accident.

Fig. 3 shows a part of the load as it was in the exhibit, on which I won all firsts.

My car is a Reo the Fifth. I have run it over 2300 miles, and it never has been out of commission except to change tires from puncture several times, which takes from ten to twenty minutes.

Marshall, Mich.

BEE PARALYSIS OR POISONING?

Heavy Losses in a California Apiary from a Peculiar Malady

BY S. A. NIVER

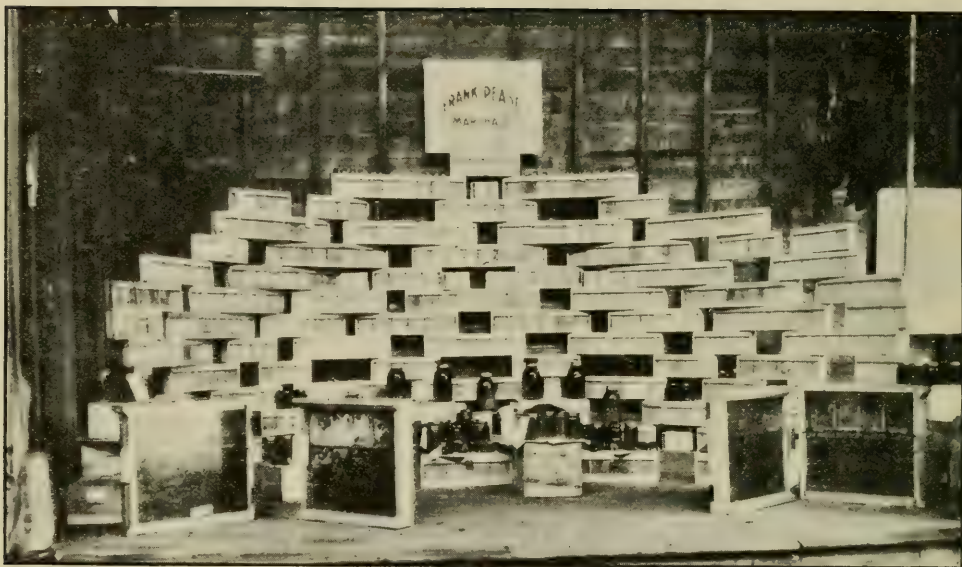
Aug. 1, p. 547, under the heading "A Peculiar Malady or Disease," Mr. S. Fred Webber, of Colorado Springs, Col., writes a description of a condition in his apiary that makes me sit up and take notice. In a footnote the editor asks for explanations. I rise to remark, "Here too."

We have had two seasons' experience with something of that character, and it is a serious affair in this locality. From all indications and circumstances we had about concluded to lay it at the door of some local poison, and had pitched upon the buckeye as the disturbing cause. A hot wave blasted the bloom about that time, and bees were found dead, clinging to the blossoms as they sometimes are upon milkweed.

That was last season—1912. It killed over half of our bees, and was particularly fatal to young queens. We lost over 400.

This season (1913) has been another dry one, and we were on the watch for trouble, which came without any blasted buckeye, or at any rate came before that bloom showed any signs of being hurt by heat or any thing else; so our conclusions of last year seemed to need revising. Besides, a new symptom appeared, or was unnoticed last year. The young bees hatched prematurely, and without wings. They would dig out of the cells in a natural manner—little white fuzzy things, get one sip of honey, and make for the boneyard.

The old bees would come out of the hive at any time of day, keel over on their backs, claw frantically at their tongues, and keep pulling them out in an astonishing way until one would wonder where they concealed such a long big curved spike before the trouble commenced. That tongue was half as long as the bee; but, once clawed out, the bees were unable to get it back again, and died. Some colonies and some yards were worse than others.



The exhibit of G. Frank Pease as it appeared at the Kalamazoo fair.

I sent some of the specimens to Dr. Phillips, who replied, "No bacteria; know nothing about it," or words to that effect.

Now, Mr. Editor, if it was poisonous honey that killed the bees, old or young, worker or queen, what ailed the youngsters, sealed in their cells, before the poison showed up? Why their winglessness or "this thusness," as Artemus Ward used to put it?

There was no particular odor noticed until the dead bees began to decay; and as the malady subsided in about a month we concluded to say nothing about it, hoping it would prove only local, and due to the drouth, which would not occur next year when the big rain came. (Those big rains are all next year here in California, you know.)

Then here comes in that Mr. Webber, from Colorado, with his experience along the same line, and away goes our theory of the trouble being local and temporary.

Brother Webber, is there any buckeye, blasted or otherwise, in your locality?

Now turn over the page and read what C. W. Arnett says, p. 548, about losing colony odor, due (I guess) to Himalaya blackberry bloom. It is the same here, with not a blackberry; but the results! When all bees have the same colony odor, and no guard bee knows friend from foe, absolutely refusing to put up a scrap to defend stores, it puts things "on the blink." It becomes a go-as-you-please race, when bees rob indiscriminately, regardless of "race, color, or previous condition of servitude." In one instance some goldens were lugging

the honey from two hives of hybrids, and the gray Carniolans taking it from the goldens. A robber seemed just as welcome as the rightful inhabitant; and a colony robbed out completely would show up strong in bees, with a good queen and nice brood, but not a drop of honey.

This state of affairs has kept us on the jump, night and day, for a month; and the description of the schemes we have tried would be too long for GLEANINGS, so I will simmer down to the finale, which was to scatter them out over 25 miles of territory, and keep moving the robbers and feeding the destitute. My partner reports a few cases where guards are putting up a fight, so there may come a let-up eventually.

What do you think of bees, shut up tightly in their hives, passing stores through the ventilator wire cloth to robbers on the outside? Our loss to date is just about 50 per cent from malady and robbing.

Jamesburg, Cal., Aug. 25.

[We are at a loss to explain what may be the cause of this peculiar malady. We might suggest poison of some sort as being responsible; but that hardly seems tenable in view of all the facts presented. No particular source of honey can be ascribed to it. We shall be glad to hear from more of our subscribers who may have observed something similar in their respective localities. If it is a new disease or malady, and if it be seriously contagious, we ought to take a stitch in time. We feel satisfied that Dr. Phillips, at the Bureau of Entomology, will

be glad to do any thing he can, and we suggest that all specimens of diseased bees be sent to Dr. E. F. Phillips, Bureau of Entomology, Washington, with a detailed description of all the symptoms.—Ed.]

LOCALITY AND HIVES

The Danzenbaker a High-pressure Hive

BY W. O. ROUDABUSH

I read with much interest the article on page 699, Nov. 1, 1912, by C. A. Stevens, on "How Locality Affects the Question of the Choice of Hives." I don't know that I would have had more than passing interest in this communication if his experience had not been given with Danzenbaker hives. In my imagination I can see Mr. Stevens with a woe-begone expression on his face when he lost virtually all his bees the first winter. It is no small wonder to me that he ever put more bees in Danzenbaker hives; but he seems to be a "sticker;" and as stickers are the only ones who will win out with any hive, I take off my hat to Mr. Stevens.

I have used the Danzenbaker hives for about ten years. Prior to this I kept bees in the old beveled-edge Simplicity hives. Then the ten-frame dovetailed, and later the eight-frame dovetailed hives; and from what experience I have had with the Danzenbaker hives I would say that location may have something to do with the question of success; but management has a great deal more. The Danzenbaker hive is adapted ideally, I think, to what I would term high-pressure beekeeping. High pressure in bee culture, as in any other vocation or business, calls for constant attention to details. With a hive the brood-frames of which are only $7\frac{1}{2}$ inches deep, and a good prolific queen to keep the brood-chamber full of brood during the honey-flow, one has the best combination I know of for the production of fancy comb honey.

Comb-honey production, after all, is nothing more nor less than crowding the bees to store this honey where we want it—in the supers. With the Danzenbaker hives I have had as many as eight frames of brood solid from top to bottom, clear out to the end-bars—a thing I never could accomplish with any other hive except once in a while with an extra good queen—say one in a hundred; and at the end of the honey-flow, after removing the supers, I have had colonies that had given me over 100 lbs. of strictly fancy honey that would die of starvation in one week on what stores were left in the brood-chamber if left to their own

devices. This is why I call it high-pressure beekeeping.

In the hands of an industrious, experienced beekeeper, one who has a system and follows this system to the letter, never waiting to do to-morrow what ought to be done to-day, and who may wish to work his bees for all they will do, I don't think a better hive than the Danzenbaker can be found. On the other hand, with the man with no system, who puts colonies out to "go it," is usually rewarded by seeing them go away and never return.

With plenty of stores of sugar syrup which costs me about four cents per pound, and which I trade to the bees for 15-cent honey, I never had any trouble in wintering my bees in Danzenbaker hives on summer stands; and when it comes to building up in the spring, I think this hive is far ahead of any other I have ever used.

I have seen some writers in the bee-journals complaining of the difficulty they experienced in handling the closed-end frames of the Danzenbaker. This frame-handling also comes under the head of "Know how." Several years ago I bought some queens of a neighbor who was kind enough to see that they were safely introduced. He is an experienced beeman, and no tenderfoot in the business, and after opening a hive and having several frames upset he looked at me and said, "If I had to keep bees in such hives I would lose my interest in the business." After showing him how the frames were handled he said nothing more to me about it. He came one day when I was away from home to see if the queens were laying, and told Mrs. R. he believed he could learn to like the hive very well. In August of that year I had ten new Danzenbaker hives set up that I had no immediate use for. My neighbor came to me and said if I would let him have those ten hives he would transfer some bees into them that were in hives that, through age, had given out. The next spring he transferred 60 colonies to Danzenbaker hives, and likes them better than the ones he previously used; so in this it is to understand first the hive. I can handle Danzenbaker frames faster than than I can handle the hanging frames, because I can handle them in twos, threes, and fours, and never kill more bees than with the open-end hanging frames.

After taking all the honey the bees have been able to make, if one will see that they are well supplied with stores for winter, and will understand that the object of the inventor was to use a frame so shallow that it would force the honey into the supers, and learn to use the closed-end frames properly, I consider the Danzenbaker hive

the best one for fancy comb honey in use to-day; but to attain success one must be always on his job.

As to the claim made by some that bees in Danzenbaker hives will swarm more than in some other hives, I have found by experience that, when the conditions are right for swarming, they will swarm from any hive unless prevented from doing so by some interference from the beekeeper; but I see that they swarm only a little more from Danzenbaker hives than other hives. I confess that, as a general rule, crowding will produce swarming, and the smaller the hive the more crowding can be done, and the more the bees feel the need of more room.

Hagerstown, Md.

AN OUTDOOR COLONY

BY C. E. BARTHOLOMEW

The accompanying picture shows a swarm of bees that chose the under side of a fallen elm tree upon which to establish their home. This was a large colony, and when found had built out nearly as much comb as would be required in the brood-chamber of an eight-frame hive. The most peculiar thing about this colony was that the brood (and there was a large amount of it at the time the colony was taken) was nearly all on the outside of the outside combs. There



A colony that built combs out of doors. Nearly all of the brood was in the outside combs, the honey being in the inside.

was several pounds of honey stored in the inner combs. This colony was taken August 4, and has now settled down to work in a ten-frame hive. The photograph shows the side view of the combs as the bees clustered upon them. This is the third time I have observed comb-building in the open; but this is the first instance where they were caught while at work.

Ames, Iowa, Aug. 15.

A CAUTION AGAINST SOME METHODS OF DIRECT INTRODUCTION

BY J. C. MOSGROVE

Opinions on direct introduction vary among beekeepers as much as the temperaments of the different races vary among the bees. I am not picking for a scrap, but I am *not* in favor of using smoke when running in a queen, for this reason: If it is at a time when there is a dearth of honey the colony will be demoralized to such an extent that it falls an easy victim to robbers, or the smoke may cause the bees to fall upon the queen and kill her.

I am in favor of placing the queen close to the entrance and letting her slip quietly in without any commotion whatever. I practice this method, and I get very good results. But for beginners and all amateurs I would advise the use of a Miller cage. This cage is best, too, for introducing a queen from the mails.

In regard to odor I shall not argue that point; but this I will mention: Mr. Miller states that in an apiary of thirty odd colonies there were three distinct strains of Italians and one of blacks; and as the honey-flow was extremely light until the middle of July, an examination of the colonies showed very few bees in them that were not raised there. Directly following there was a heavy flow from caletbra, and within a week every colony had a considerable part of its population made up of all the different strains. He asks, "Had the bees' sense of smell gone wrong?" No, I don't think so, and odor had nothing to do with it either, because a bee coming from the fields heavily laden with honey or pollen, alighting in front of a hive other than its own, may crawl unmolested within. Why? Because a laden bee going into a strange hive is not looked upon by the inmates as a thief or an interloper, for it brings its burden to add to the store, and is not trying to pilfer the fruits of another's labor. On the other hand, just let an empty bee go buzzing around a strange hive. What is the result? In plain English, she is very promptly "kicked out."

As to closing the entrance of the hive and pounding on it with the fist, that may at times prove disastrous. I have resorted to this to cause the bees to fill themselves with honey before shaking into the grafting-box, and found the queen badly balled. This taught me a lesson. Now I always find the queen and set the frame she was on in a safe place to one side before pounding on the hive; then after shaking what bees I want I hang the frame back in the hive with safety, as the bees on the frame with the queen have not been unduly excited, and those in the hive have filled themselves with honey until they have become logy and have no fight left in them.

Medina, Ohio.

ROUTING OUT THE BUMBLEBEES

BY MRS. S. L. DORSETT

As I have not noticed in GLEANINGS any thing in reference to the bumble-bee I thought your readers might be interested in a bumble-bees' nest that was found on our premises last week, a photo of which I inclose herewith. These bumble-bees are the black-headed kind, the kind that sting so viciously. These bees had built 75 large cells and 25 smaller cells directly on a board shelf in a building in which grain and feed were kept, ingress and egress being made through a window. At first only one or two large bees were seen at a time, and nothing was thought of their presence except that they came a little too near sometimes when one went inside the building; but in the course of three weeks, as nearly as we can tell, these bees became so cross that it took a brave one to enter the building, for they would circle around one's head and throw off a rank odor, making it very plain that they were ready to fight to defend their young.

It became necessary to get rid of these troublesome intruders, hence a well-filled smoker was lighted, and two people, well protected with gloves and veils, entered the building. After filling the air with smoke, as much as one could stand to remain inside the building and work, the material on the shelf was cautiously removed, and there, directly on the bare boards, were a hundred beautiful cells. Over the top of these cells was a layer of bits of rags and waste, just such as a mouse would use for a nest, but it was woven together much better than a mouse-nest. It was more as a bird would build a nest, only it was put over the cells covering them completely except one opening just large enough for one bee to pass in



A bumble-bees' nest built inside a coil of rope.

and out. The whole nest was about as large around as a table saucer, and four inches high. Twenty of the cells had hatched, and in their cells was found some rank-smelling honey. The newly hatched bees were in the vacant space up over the hatching cells. The nest as shown was built in the center of a coil of rope, and in shape it very much resembled the old-fashioned straw hive.

West Point Pleasant, N. J.

CARNIOLANS AND THEIR CROSSES

BY SAMUEL SIMMINS

In a recent issue information is asked for regarding Carniolans superseding queens, swarming, etc.

Ever since Mr. Benton first offered these queens and bees I have continued to import both queens and stocks down to the present time from the native breeders. I have at times imported original stocks in the original long flat hives in which the combs travel well, without breaking, as a rule. My last consignment of this kind came to hand in early June of 1911. It was chilly for the time of the year, and the bees were as silent as death upon arrival, being all but starved through the stores not holding out.

But these Carniolans, while naturally quiet under confinement, always travel well, for the reason that our Carniolan friends have learned that young bees travel safely (with combs) almost any distance if they have just enough food, which is not always the case. The old bees are disposed of by moving the hives to a fresh stand a few

days before packing for export. Thus one has a good foundation of all young bees to start on when they are transferred to frame hives.

As usual the stocks referred to were transferred by first removing the top board, to which the combs are attached. These, with the mass of bees covering them, are then turned over, when, beginning with a side comb, each is gently sliced off, and the bees shaken into the permanent hive prepared for them close by. Very little smoke is required; and as a rule one may thus transfer ten or a dozen lots without getting a single sting.

With bees imported early in the season the queens are of the previous year; but I do not find these bees any more given to swarming than imported Italians, nor are they likely to supersede the queens more than such Italians are known to do.

During 1911 we had a particularly long fine period after a cool spring, and the several imported stocks I retained stood the whole summer without swarming; and even though I cut out no queen-cells they became very populous, and none of the queens were superseded.

But now I must mention a strange peculiarity found with these bees. They go and come rapidly in large numbers all day long, but the work done is not commensurate with their apparent activity, and they do not store as heavily as my line-bred Italians, which come home more slowly and drop heavily on the alighting-board with their bodies distended with the weight of honey carried. Pure Carniolans do not carry such loads, and, like pure Cyprians or Syrians, appear *unable* to load up so heavily.

As each of these three races is invaluable for crossing, producing bees that will store heavily in some localities where imported Italians are quite useless, they should not be hastily condemned because of their apparent inferiority as pure races.

Carniolans crossed with our natives produce workers that yield large crops of honey; but the temper of the bees is somewhat troublesome. They are, however, not so unmanageable as Cyprians or Syrians when crossed with blacks.

Carniolans mated to imported Italian drones are of little value. Such Italians crossed with Carniolan drones are more useful, and the workers are superior to either race pure.

Cyprian and Syrian queens mated to Carniolan drones throw workers that are good-tempered and very strong workers, but are even better when crossed with a good strain of Italians.

It may be taken for granted that Cyprians mated to a suitable strain of Italians will produce bees of more general utility than any other strain of Carniolans or Italians, pure or hybridized. Syrians do not lose their bad temper through several crosses; but it is a strange fact that Cyprians of the first cross to an Italian drone of a good-tempered strain will show workers which are more gentle than any pure Carniolans or Italians known. I can vouch for this from many years' experience in crossing these bees; and I am not in the least surprised that Mr. Burrows has recently been under the impression he has found a stingless bee. Personally I do not remember ever being stung by any bee of the most populous hive containing this Cyprian cross with Italians, whether in the warm or cool season; and as to wintering, they are at all times bright, slim, and active, rarely or never showing that somewhat bloated appearance found with some Italians and their hybrids when long confined.

For comb-honey production it would be better to cross Cyprians with Carniolan drones, but for heavier results with good Italian drones.

With over thirty years' experience with Cyprian bees and their crosses I have so far found none with disease of any kind. Italians are more immune than natives to both brood diseases and paralysis; and somewhere about the year 1906 in articles of mine published in GLEANINGS I showed how Italians were able to overcome brood diseases better than blacks. I also included Carniolans as being able to keep such diseases at bay.

Mr. Frank Benton declared that no foul brood was known in the locality from which Carniolans are imported; and in your journal for April 1, 1911, p. 203, you will find Carniolans placed ahead of Italians; as Mr. J. T. Dunn says, "Carniolans would withstand this disease when Italians in the same apiary were infected and reinfected." Possibly these Italians may have been somewhat inbred, as usually they do not readily give way to disease.

Heathfield, Sussex, Eng., Dec. 26.

MORE COMB HONEY AND LESS OF EXTRACTED

Importance of Proper Packing of Comb Honey; Conditions in the West

BY M. A. GILL

You have been advocating in time past the production of comb instead of so much extracted honey. Mr. Root, you stand in a position to wield a great influence; and you,

together with that prince of good fellows, and a very dear friend of mine, W. Z. Hutchinson, have in the past rather favored the production of extracted honey. I know nothing of the conditions in the East; but I do not think there has been the deflection from the one branch of the business to the other that you think. Take California, Colorado, Idaho, and Utah. Outside of California, where there has been a little falling off in the production of comb honey in the past few years, I think there has been a gain in the other States in the tendency to raise comb honey; and the fact that less honey has gone forward is because of the poor seasons rather than a changing to extracted honey.

You strike the keynote when you speak of the miserable handling of a part of the comb honey offered to the market. Now, if a campaign is to be started urging the production of more comb honey, let's first start a school urging the placing of a better grade on the market.

It matters not how slipshod the methods are that produce a can of extracted honey. If it is ripened, settled, or properly strained, it's all right for the market; and any one who can turn a grindstone can produce extracted honey, whether at a profit or not. But the man who is to place a case of comb honey on the market must cater to the appetite of the eye, for he is dealing with an epicure—one who is buying a luxury; and he must strive to excel by, first, honesty of weight; second, quality; third, neatness of appearance; and he who meets the above requirements must be a man of pride for and taste in his work. If the advice to produce more comb honey were taken in many cases, where the extracted apiaries have been run with hired help, schooled only in the rough methods by which a crop of extracted honey is obtained, in many cases the product would be no better (perhaps worse) than now. Then let them go on and produce the excess (if there is to be any) in the extracted form, for it is much more capable of being worked off than an excess crop of comb honey, whether in good or bad shape; for we must never lose sight of the fact that comb honey is a luxury, and luxuries must be neat and attractive to sell well.

Utah is just as good a honey country, and even better bee country, than Colorado; but its beemen sadly need the schooling that the Colorado comb-honey men have had for the past fifteen years. Utah's comb-honey men need to get together and school themselves, using the motto "The best is none too good," which will remove the low price and bad name that now hangs over us, for no better

can be produced anywhere; and I certainly felt flattered this fall when I read in a paper an account of a carload of comb honey that I had sold to an eastern buyer. He said that he had bought from me the best-handled car of honey he had bought in an experience of twenty years.

I am not one of those who think that more bees can be handled for extracted than comb honey, after having had nearly twenty years' experience with each; neither do I think that the production of extracted is more profitable when we take a term of years and take into consideration the condition of the capital stock.

If you would travel over the country and see the outfits that some people are using, and see the "fool supers" in which it is impossible to produce a first quality, you would be surprised. This, of course, is on account of the "penny wise and pound foolish" plan of saving a nickel rather than use standard supplies.

In conclusion, I will say, as one who has been in the comb-honey business exclusively for twenty years, waiting for the time when quality would be appreciated, that, if a crusade is to be started inducing more people to raise comb honey, we should use my old class motto at school: "Not how much, but how well."

Hyrum, Utah.

QUEENS INJURED BY BEING SENT THROUGH THE MAILS

Number of Queens Shipped in a Nucleus

BY LOUIS MACEY

While the mailing-cages in use at the present time are cheap, simple, and convenient, and many queens "go through safely" in them, usually arriving in apparently good condition, it is universally conceded that a queen which is sent in this way through the mails very seldom arrives in normal condition. Conditions are not most favorable, therefore, to her passing muster with the strange bees and with her new owner. Never in all her life is a queen subject to such critical inspection as when introduced. The biped inspector has only two eyes, and a much less critical "smelling apparatus;" but his criticisms do not end with the first day, nor with the first week. Even after two or three weeks of prying into her work he is still in good position to "make a kick."

Everybody admits that the queen is strange to the bees and in an abnormal condition as to nerves, because she is so tired and frightened that she is in poor condition to maintain that queenly dignity so neces-

sary to the morals of the colony. But it must also be admitted that such a queen taken in the flush of her egg-laying, and confined with only five or six of her subjects, with no chance to lay, and subject to "rough handling and to being chilled in the mails," is in very poor condition all around to resume her normal rate of egg-laying so as to satisfy her most critical judge—the man who paid for her, and naturally expects something. Some queens die in transit. Others, while they pull through alive and in apparently good condition, have been rendered practically worthless by the hardships of the trip. Numerous instances have been cited of good queens starting, which, after arrival, became drone-layers.

Would it be going too far to say that few queens going 300 miles or more ever regain their normal usefulness? If they are good ones, and regain within 10 or even 20 per cent of their normal efficiency, it might not be noticed, and they would still be classed as good. Nevertheless, the loss would be there; and would be felt by the breeder as well as the buyer. Northern beemen recognize the desirability of getting early queens from the South. Southern queen-breeders would like to sell more queens, so it seems to me that one of the biggest problems before us is to minimize the chances of injury, or, in other words, to provide such conditions as will keep the queen as nearly normal as possible while in transit. Shipping in nuclei does this; but the expense is too great for one queen.

I have an idea. It may be old, and it may have been tried before; but in the five years I have been reading bee lore, I have never seen any mention of my plan. Breeders advise shipping \$5.00 and \$10.00 queens in nuclei, but say nothing about shipping five or ten \$1.00 queens in a nucleus. Why not? Beekeepers can not afford the transportation charges on a nucleus with one \$1.00 or even \$2.00 queen; but they could if it contained ten or twenty queens, all safely protected from rough handling and chilling by the same bunch of bees. Do not call me a fool yet. Of course I don't mean to turn ten or twenty queens loose in a nucleus; but when breeders raise twenty or more queens to mating age in one frame, why should they not be able to ship the same number in a modification of the same frame with a warm living wall of bees on each side? With cages placed back to back, something like 50 could be placed in the middle frame of a nucleus; and if there would be danger of the outside bees pulling the queen's legs off, use a finer-meshed screen.

Suppose I want 16 queens next spring, and I want them to come through from

Texas, and I want them to come through not only alive but in a condition as nearly normal as possible. What is to prevent the breeder from taking some unfinished sections, putting candy in one corner, a sponge filled with water in another, tacking wire gauze on each side, pouring in a handful of bees and a queen and then fitting the whole 16 sections of baby nuclei in a special frame, and putting this between two frames of brood and bees in a nucleus box? While he was about it he could partition the box with screen each side of the middle frame, and put a queen with the bees in the two outside frames. That would make 18 queens, and each one protected from rough handling and chilling, and with some natural comb to crawl over, cling to, and perhaps lay in. Why not?

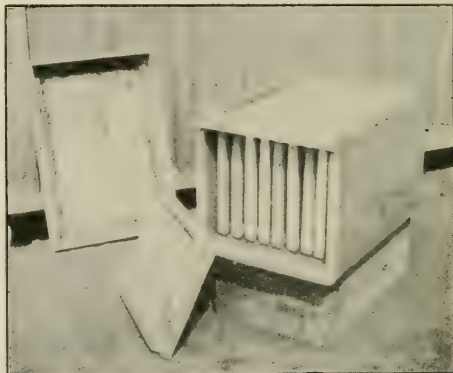
Still another: While E. R. is experimenting with pound and half-pound packages of bees, why not try sending a queen in with them? When one needs queens, a few pounds of bees would never come amiss. If a single package will go safely, wouldn't six, eight, or a dozen—isolated or not from one another with cardboard if necessary—hold heat and go together in one package all the better?

North Platte, Neb.

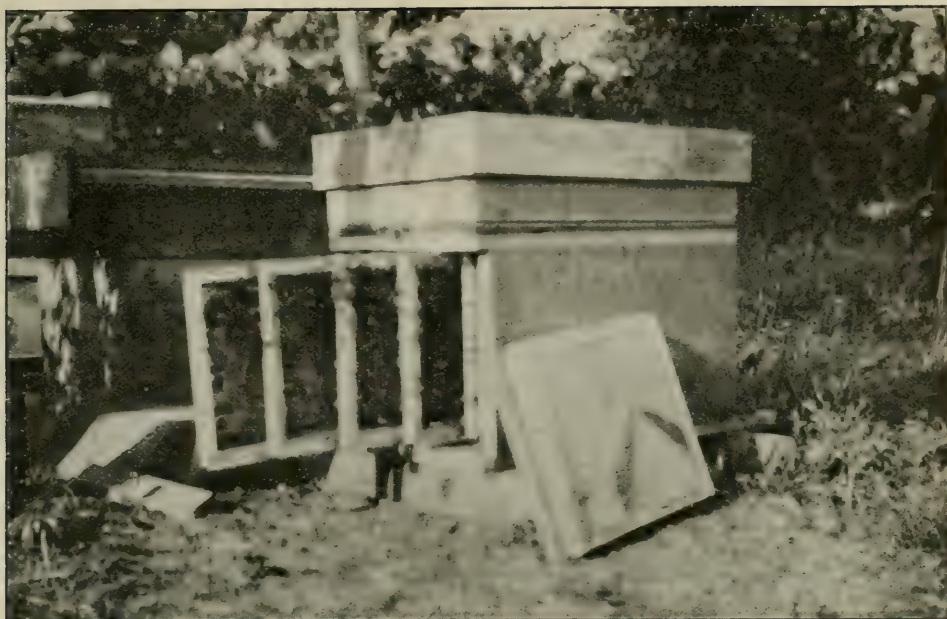
A HIVE HAVING AN OPEN BACK THROUGH WHICH TO DRAW THE FRAMES

BY GEORGE T. WHITTEN

The pictures show my new general-purpose hive, before and after the bees were put in. It is 20 inches long, 13½ wide, and 12 high. It takes the regular eight-frame super or hive-body on top. The frames work on the same principle as those in the observatory hive, and are shorter and higher



George T. Whitten's hive made on the Prokopovitch principle of removing combs through an open back instead of at the top.



Some of the combs pulled out to show ease of examination when supers are on top.

than the Hoffman frames to fit this hive. The front bars of the frames are one inch wide to prevent the bees from building comb on the sides or between them. The top and bottom of the hive are 20 inches long, and sides are $\frac{7}{8}$ shorter. The back or door is of double boards. The inside one shuts inside the hive-body, has tins around the edge to prevent the bees getting at the boards to stick them together, and to force them away when closing the hive. This works perfectly, and does not crush a single bee. To look them over, the supers do not have to be touched. This does not disturb the bees at all in their work. I can examine them in a few minutes, and it is a pleasure to do so.

Hartford, Ct.

[We will explain that Professor Whitten, of the Handicraft Schools, Hartford, Ct., is the inventor of an observatory hive which he exhibited at the convention held at Amherst, Mass., early last summer. We hope to illustrate this soon in our columns. He has also devised a hive embodying the same principle for ordinary hives. The accompanying illustration will show the scheme. The top-bars and bottom-bars of the frames slide in metal channels in such a way that there is no chance for the bees to propolize. While it is possible for one to examine any comb in the hive without lifting off the supers, the arrangement, we fear, will not

prove to be very satisfactory as a permanent working hive run for regular honey production. This same principle was used by some of the early inventors, among them being the celebrated Prokopovitsch, in 1830. Baron Berlepsche, of Austria, used a hive something on the same principle, with this difference: The frames were moved from the end or side of the hive transversely. The principle shown in these illustrations has been used to a greater or less extent in Europe ever since. But it has never been used to a great extent by large commercial honey-producers. The main objection is that frames secured in a hive as here shown are all at fixed distances apart with no opportunity for spacing further apart. There is quite a tendency for bees to attach brace-combs during a heavy honey-flow, hence the combs will be bulged in a way that would make removal difficult and slow. This will result in killing bees by rolling them over and over as the frames are drawn out. With ordinary hives opening from the top with self-spacing frames, the removal of a division-board or a single frame leaves room for spacing the other combs further apart, so one can be easily lifted out.

Of course, there is the advantage that the brood-nest can be examined without removing the super. But in practical bee culture there is seldom any occasion for this.—Ed.]

HOW TO TAKE AN INVENTORY OF A BEE-YARD

Sending Honey by Parcel Post Not Satisfactory

BY H. G. BRANT

In taking inventory at the close of the season, what value should be placed on equipment in use—for instance, hives that are as good as new to the beekeeper, but are one or more seasons old?

What value should be placed on drawn comb, full colonies, etc.?

What form should the inventory take? So many bottom-boards, so many bodies, so many covers, so many frames, etc., at so much?

That the time is not yet ripe to ship honey through the mail by parcel post was well illustrated one day last week at the postoffice in this city where I am employed. A sack was dispatched at Tomah, Wis., containing a ten-pound friction-top pail of extracted honey. Heavy sacks of mail piled on the one in question caused the cover to spring, and the contents smeared all over the rest of the mail in the sack. The package has not been perfected which will permit the shipment of honey by parcel post. Also, except in the local, first, and second zones, the rates are too high to permit any profit if the honey is to be shipped in a satisfactory container. I handle only parcel post for eight hours every day, and see a great many queer packages; but the one last week is the first honey I have seen. Eggs in considerable quantities are received and shipped. These, however, are packed in six-slatted carriers with a handle like a pail. As a writer in a recent number of *GLEANINGS* said, "A basket or pail with a handle on that can not be thrown or laid on the side is best."

The fall flow this year was very poor, a dry spell at the close of the clover flow preventing secretion of nectar. The white clover was the best for several years. My colonies averaged 100 to 110 lbs., and one gave 48 lbs. in nine combs with wide spacing. This is the first season I have tried it; but all supers with nine combs spaced wide gave more honey than those with ten combs.

St. Paul, Minn.

[In order to get at the valuation of second-hand hives and parts of the same, it will be proper to start off with the cost of each item nailed and painted, and laid down at the apiary. The usual rule is to charge off 10 per cent a year on machinery and tools or appliances. It is generally considered that a tool, machine, or appliance will be worn out or become out of date in ten years. In figuring this we charge 10 per cent on

the first cost of the article every year. To be specific we will suppose that the hives in the yard have been used five years. Ordinarily we would write off 50 per cent; but as lumber has advanced in value so sharply during the past few years, a second-hand hive is beginning to be worth almost as much as a new one, if not quite. See what P. C. Chadwick says elsewhere in this issue, page 750. If a hive has been painted regularly, say once in two or three years, and on regular hive-stands so the bottom does not come in contact with the earth, it ought to be worth as much as a new one. As to the cost of the bees themselves, that will depend on their market value in the locality, whether they are pure Italian stock, pure Carniolan, or whether a mixture of several races.

In some parts of the country bees are in great demand, from the fact that a single colony will very frequently save its first cost in one season, and sometimes considerably more. In other localities, especially after a series of poor years, a colony of bees will bring only a nominal price.

There is another factor that must be considered in the cost of a colony, and that is the queen. A queen whose bees far excel any other bees in the yard in the production of honey may be worth far more than the average run of queens. It is not an uncommon occurrence for a beekeeper to say he would not take \$25.00 for a certain queen. A colony with such a queen would be obviously worth \$25.00 plus the value of the hive and bees. A colony with *daughters* from this queen will be worth more than colonies having ordinary queens.

Generally speaking, a colony of pure Italians in a new hive, of a good strain, will be worth anywhere from \$7.00 to \$10.00 in the early part of the season. After the crop has been secured, there will be a temporary depreciation of probably 50 per cent for the reason that their owner must feed them and assume the risk of wintering.

Another important factor in the valuation of a colony is the kind of frame and condition of the combs. If they are only one or two years old, well wired, in well-made factory frames, they are worth very much more than crooked combs in home-made frames. Good drawn combs one or two years old are worth anywhere from two to three times as much as new wired frames of foundation. The latter in a honey-flow do not begin to compare in value with drawn combs. While foundation can be drawn in from 24 to 48 hours, this drawing-out necessarily absorbs a large force of bees from the field, and of course this would mean a loss of honey. And this is not all. The foundation may discourage the bees

and cause them to swarm. This is the principal reason why producers of comb honey have more trouble from swarming than those who produce extracted honey. For that reason we place a higher value on drawn combs than is ordinarily set. They are in fact the best kind of property that the producer of extracted honey can own. If filled with pollen for early spring breeding they are worth as much as the same combs filled with honey or sugar syrup.

We do not think it would be necessary to apply the rule of 10 per cent depreciation on drawn combs; for if properly taken care of, and kept away from the moth miller, they ought to be good for 25 years. The depreciation, then, should not be more than 5 per cent a year; but in the hands of a careless beekeeper the depreciation charge might be nearer 25 or 50 per cent a year.

Your experience in sending honey by parcel post is in line with other reports we have received.—ED.]

GREASY WASTE AS A SMOKER FUEL

Auto Trucks for Out-apiaries

BY R. V. COX

I notice there is some discussion about cotton waste. I never had a good chance to get this fuel till this year. Perhaps my bees had got used to rotten wood, and did not like the smell of the new smoke. This is a poor reason; but my bees certainly gave me all that was coming to me several times till I changed to the old fuel, and then they let go and were decent.

I remember your speaking of the automobile truck in GLEANINGS as a light truck, 1000 lbs., I think. Do you draw the full supers of honey home on it and the empty ones back? If so, do you not have to make several trips a day with it?

I have had several poor(?) years here, and think of trying outyards and a truck. Sloansville, N. Y.

[We do not understand why your greasy waste should not give you just as effective service as that you could secure from rotten wood, corncobs, or any other material. In using fuel it is important to get it well ignited. We never saw a colony yet that we could not subdue with greasy waste. If the bellows is worked vigorously a few times, the smoke will roll out in a dense volume of a bluish-white color.

We have used an automobile truck for our out-apiary work during all the past season with great satisfaction. Our truck is capable of carrying 1200 lbs. at a load, at an average speed of fifteen to eighteen miles an hour, and is capable of a maximum of 22

miles an hour. It will do the work of two or three teams at less cost, and at the same time enable one to have his outyards placed far enough apart so the bees in their flight do not overlap each other. Some of our yards are over ten miles from the home yard; and yet at this distance we are rarely more than forty minutes on the road, even when loaded down.

We have had no engine trouble—in fact, no trouble of any sort. The truck has a friction drive capable of all speeds. We are thoroughly convinced that a truck with this kind of transmission is better for all kinds of roads, and certainly better for the average driver, than the sliding or planetary gear. Such gears are liable to be stripped, and, what is more, the sliding gears require a much greater degree of skill to operate. The friction drive on the other hand is very economical in that the wearing surfaces do not cost to exceed \$2.00 for renewal a season, and a broken sliding gear may cost anywhere from ten to one hundred dollars to replace. The machine we have driven with such satisfaction is the Commerce, manufactured at Detroit, and costing less than a thousand dollars, complete with top and storm aprons.

It has been our practice to carry full supers of filled combs from our extracting-yards to the home yard to extract, where we have our extracting-outfit, and then carry the empties back. As the truck can make quick and frequent trips, no single hive is deprived of its full quota of combs more than an hour or an hour and a half at a time. A large power extracting-outfit will just about keep up with the truck coming in with full combs, and returning with the empties. It goes clear into the apiaries, and up to the door of the extracting-house.

Again, an auto truck enables one to split his full number of colonies up into comparatively small apiaries. In this way overstocking is avoided. With a team of horses it is not practical to have a yard smaller than a hundred colonies nor further than two or three miles apart; but with a light automobile truck one can operate out-yards of thirty, forty, and even fifty colonies five and even ten miles apart. In a locality that is rather poor this is a great advantage. If a small beeyard can have all the nectar it can reach, the individual yield per colony will be relatively much larger.

We are well satisfied with our investment of the automobile truck; and we believe the day has already arrived when the beekeeper of 500 colonies will find it a saving over a team; and, if he owns one thousand or more colonies, an absolute necessity.—ED.]

Heads of Grain from Different Fields

I am like the busy little bee
That works with all its might
To gather honey every day
And eat it up at night.

Rev. Wallace.

Combs Melting Down on Hot Days; the Remedy

I have lost an average of two full honeycombs per colony, besides some half a dozen colonies outright. Our summers are made of a variation of hot and cool spells. The north wind will blow for several days, running the thermometer up, oftentimes, to 112 degrees or more. Then, as a rule, the cool south wind springs up, and continues blowing until it feels quite cool.

Some of my hives are under large oaks in the best of shade, and some out on a glaring hillside. Of course those in the hot sun suffered most from the heat. My theory is that ventilation over the tops of the frames would prevent this loss, whether a hive were in the sun or shade. I propose taking a comb-honey super and tacking screen over the top and bottom, also over an inch hole bored in one end of the super, then place it between the cover and hive with the hole toward the west, away from all prevailing winds. Would this be sufficient protection to hives out in the sun?

VENTILATED ESCAPE-BOARDS.

The new bee-escape board, described on page 577, looks more practical. I have given the Porter bee-escape boards up. In hot weather I feared to use them, and in cool weather they would not free the supers of bees in two or three days. I have seen a La Reese bee-escape board advertised. Are they good?

In an ordinary year my bees gather honey more or less from February to October. The winters are open and mild, giving the bees opportunity to fly out nearly every day. How many full combs should a colony have to winter on?

HOW MANY POUNDS OF EXTRACTED HONEY CAN ONE TAKE WITH A TWO-FRAME COWAN EXTRACTOR?

Can you tell how many pounds of honey a man can extract in a day with a Cowan two-frame extractor? I can average only 500 pounds a day. I am one beekeeper who greatly appreciates the A. I. Root Co., and consider the knowledge gleaned from the A B C and X Y Z and from GLEANINGS worth hundreds of dollars to me.

West Butte, Cal., Aug. 24. R. A. WILBER.

[The remedy for combs melting down is to place all hives that are out in the hot sun under some kind of shade. This may be done by the use of shade-boards, or, better, by placing the hives in the first place in the shade of a small tree that will protect them during the hottest hours of the day. Additional ventilation will doubtless be good also. The scheme you propose would give no more ventilation than would be secured through a one-inch auger-hole, because the cover will fit down over the wire cloth of the super. Some beekeepers use the plan of giving ventilation through the upper back end of the hive. This may be done by putting on a rim or super having two or more holes at the back end. These may or may not be covered with wire cloth. A strong colony will guard these holes the same as they would an entrance. Another scheme is to tilt the cover back a little—just enough to give ventilation at the front and back. We do not think you need to have any trouble from combs melting down if you put the hives in the shade and then give ventilation at the top and a large entrance at the bottom.]

One man working alone may be able to take as much as 1000 lbs. of extracted honey a day with a two-frame Cowan extractor providing all conditions are favorable; but as a rule the general average will not be much if any higher than you have been able

to secure. Of course, if one has a good helper he can more than double the output of one man. If the hives are quite a distance apart, frames stuck together with brace-combs, and badly glued to the hive in addition, the progress of the work will be much slower. If, on the other hand, the frames are modern, spaced 1½ from center to center, without brace-combs, hives close together, and near the extracting-house, one can, of course, take more honey in a given time. If he follows the practice of some, and extracts before the combs are entirely capped, or if he goes still further and extracts before they are capped at all, he can take, of course, more gallons of honey; but it may, and probably will, be honey of a very poor quality.—Ed.]

Introducing; a Modification of the Caging Plan

I catch the undesirable queen, mash her head (don't quite kill her), run in the queen that is to take her place with her at once, with no workers. I push enough queen candy in the hole to last about six or eight hours; place the cage right in over the frames, and the job is done. I had not a bit of trouble with this method when robbing was rampant. Let us compare the old with this new plan a little. By the old plan of having the bees without a queen for a day or two, queen-cells are invariably started; and when the queen is liberated from the cage she is likely to be balled and sometimes killed in favor of the cells; and about the only way to ward off this trouble is to cut out the queen-cells, which is almost impracticable. By this new plan we have conditions about as close to nature as we can get them. First, we have the odor of the undesirable queen to start with, and the bees don't seem to realize that any but their queen is in the cage, and therefore they rarely if ever ball the cage; second, when the queen is liberated she must have acquired the odor of the dead queen. By this method the bees are without a queen only about half a day, which is a big thing in the way of eggs and population.

Swainsboro, Ga.

S. CHEATHAM.

Does a Queen Lay in a Queen-cell?

The question was up in last GLEANINGS about a queen laying in a queen-cell. I have sometimes heard it questioned whether she actually lays in queen-cells or the workers place the eggs there. This recalls an experience I had last summer. In looking through brood-chambers I found a queen caught head first in a queen-cell, or, rather, a queen-cell cup. The evidence was strong to me that she had just stuck her head in there to see if every thing was all right before depositing the egg, and by some means had got caught. When I liberated her she was uninjured, and went on about her work.

Guelph, Can., Feb. 25.

MORLEY PETTIT.

The Use and Abuse of a Smoker

Kindly advise me how I must smoke the bees. Must I give one, two, three, or a dozen puffs into the hive? Must I blow the smoke into the entrance before I open the cover, blowing the smoke up into the frames, or must I remove the cover and blow the smoke down? (This latter way seems useless to me, because smoke won't go down.) Then after I smoke them, how long should I wait before taking off the cover? Should I handle them at morning, noon, or night, I mean, to find the queen? Then how shall I know if she is young and fertile or old and sterile?

G. D. CAMPBELL.

Weymouth, Nova Scotia, Can., Sept. 3.

[It is hard to give any general rule applying to the use of a smoker, for most beekeepers have their own particular ideas on the subject. In general we

may say that, in our opinion, most beekeepers use too much smoke. The point is, to use smoke to prevent the bees from "boiling up" or making an attack. An experienced beekeeper knows just when to use a little smoke to avoid a general uprising. It is far better to prevent than to try to stop a vicious onslaught by the use of large volumes of smoke afterward.

It depends somewhat upon the bees in question; but when you go to a hive to open it, it is safe, as a rule, to blow a very little smoke in at the entrance, just enough to overcome the tendency on the part of the guard bees to rush out. Then, being as careful as possible, pry up the cover just a crack, or pull the quilt away slightly from one corner, as the case may be, blowing in a little smoke at the same time. Theoretically, smoke will not go down; but in actual practice it can be blown down between the combs. However, a great amount of smoking should be avoided, as it is usually not necessary. As soon as the bees have gone down somewhat from the top-bars, you can proceed to loosen the frames and take them out. Be sure to have the smoker handy, where it can be used at an instant's notice, at the first indication that the bees are resenting the intrusion.

The best time to hunt for queens is during mid-day, say from ten o'clock until two, or on warm days from nine until three. Many of the bees will be out of the hives then if a honey-flow is on, and it is not so difficult to find the queen. Avoid opening hives early in the morning or late in the evening, as the bees are much more likely to be cross.

It takes an experienced beekeeper usually to judge a queen by appearance. You can tell a good deal by the color and size, but the best way for you to judge would be to observe the work of the queen. See whether the eggs are in regular order, whether the brood is largely worker brood, etc. A very old queen may lay too large a proportion of drone eggs, or an inferior queen will lay irregularly.—ED.]

Why no Egg-laying in the Fall?

The bees that I got during early fall were all right. The queen did her duty by laying eggs enough to satisfy me, but for two or three weeks there has been no brood. Should I expect any at this time of the year?
MRS. SUSAN E. ALLEN.

Wheelerville, Pa., Oct. 10.

[Under normal conditions the average queen in the North three months or more old will stop laying in the fall. Only young queens, thirty days or younger, will lay during the months of September and October in northern States. The condition you find is about normal with your bees. During cool weather it is best for the queen not to lay, as the bees, in their effort to take care of the brood, spread the cluster too much, and this kills some bees, and at the same time allows the brood to die.—ED.]

The Colony-odor Theory Doubted

I have not been able to accept fully the colony-odor theory that one reads of so much in bee literature. June 15, p. 419, Mr. Cargo says, "In one case, bees in an upper brood-chamber left their hive while it was set aside a few moments, and attempted to return to their regular entrance below, and were killed." I understand that these bees from the upper story, finding themselves separated from the rest of the colony, took wing and returned to the entrance of their own lower story, and there were received as foes. Why did not their colony odor protect them?

Two days ago I shook the bees of a hive which I had "Alexandered," as they had destroyed the cell I gave them, in front of the hive of their own mother, hoping to have them help her colony store some basswood honey. I had to leave them immediately after shaking; but on visiting the hive the next day I found the piece of burlap on which they were

shaken covered with dead bees. Colony odor didn't seem to cut any figure there.

At other times I have shaken strange bees in front of weak colonies, or colonies I wanted to strengthen, and they were received kindly, despite their strange odor(!).

J. F. W. ULRICH.

Hasbrouck Heights, N. J., June 23.

Learning Bee Culture, Etc.

I am a boy of 21 years, and have been raised on a farm, and worked for my parents all my life. I have been reading GLEANINGS for over a year. Though I have never met you I feel as though you are one of my friends. I have been interested in bees for a long time; but the bee fever has got worse since I have been reading GLEANINGS. I got my first bees a year ago last August, and now have four colonies, and like to work with them better than any thing else. But I feel there is so much to learn about them before going in on a large scale that I am bothered whether to keep on at home with the bees or try to get a place to work in a large apiary under an experienced beekeeper. The bees have been storing very heavily this fall, and it has been so warm that some of the honey has been breaking down.

Metropolis, Ill., Oct. 13. HARRY RODENBERG.

[My good friend, as you state it I advise you to stay at home, study your A B C book and the journals, and from the yield of honey right here in the middle of October you certainly must have a splendid place for keeping bees. I know a good many would say, "Go and work in some big apiary;" and that might be a very good thing; but it would be a considerable expense, and, as you state it, I am inclined to think you would get along faster right where you are, providing your enthusiasm keeps up.

With the start you already have, I feel sure you can build up an apiary as fast as you have skill to manage it. Quite a few who have purchased a fair-sized apiary to start with, unless they have had much experience, have made a failure. If you could visit some beekeeper near you it would doubtless be of great benefit; but I think that in the end you will gain by working for yourself in place of somebody else. It is expensive to go away from home—that is, to stay any length of time; and your bees and other work would be likely to suffer also from your absence.—A. I. R.]

Reversing the Entire Body in Order to Get Combs Built Clear to the Bottom-board

I notice that you seem to have spaces at the bottom of the combs in your deep Hoffman frames; and as this causes some bother in finding queens, and takes up valuable space I should like to ask whether you have tried this remedy:

Take one of your bee-escape boards and cut an eight-inch round hole in the middle of it. Go to any fairly strong hive during a good honey-flow. Remove the supers and separator board; place your prepared board on top of the brood-nest; nail down, making sure to wedge the frames so that they can not move. Now turn the entire body upside down on the bottom-board and you will have all your frames filled out full in a few days. Try this once, and I am sure you will like the plan.

Shellman, Ga., Aug. 22.

D. W. HOWELL.

[The plan here spoken of has been used to quite an extent. Along in the early 80's reversing was thought to be the panacea for all the ills that confronted the beekeeper. It was claimed that it could be used to destroy queen-cells, which it did not; that it would check swarming, which it also failed to do; that it would force the honey from the brood-nest into the supers. This it did accomplish to a considerable extent. There is certainly one thing it did do, and that was to get the combs built clear down

to the bottom-bar. The Danzenbaker hive accomplishes this last feature very nicely, because the frames are reversible. But in later years very little importance, comparatively, has been attached to the matter of reversing. However, one can get the combs of the Hoffman-Langstroth frame built clear out to the bottom-bar as here explained.—Ed.]

A Statement

On page 567, August 15, Doolittle is asked the question: "Did you read on p. 503, GLEANINGS for July 15, that the 'first queen-cell is likely to hatch on the ninth day from the time the prime swarm issues'?" The above quotation is what was added to the title of my article on that page. The title of my article was: "The Control of After-swarms." The other part of the title as it stands on that page was added by some one else. In my article I did say in one place "due to hatch," when I should have said, "due to be hatched." But then I immediately qualified it by saying, "That is, the forenoon of the ninth day after the first swarm in an apiary issues, a young queen is quite likely to be hatched." It was not the time of the queen's hatching that I was concerned about, but the time to look after the colony to prevent after-swarming. There is no discord when understood.

Huntington, Ind.

J. W. SOUTHWOOD.

Scarcity of Drones Retarding the Swarming Fever

Does it not seem reasonable that a hive running over with big clumsy noisy drones suggests that the home is a bit crowded?

Douglas, Ariz., May 21.

M. CLYMER.

[A superabundance of drones might suggest a crowded hive, but not necessarily so. In many cases, at least, their presence is due to a failing queen whose eggs are producing a large percentage of drones rather than workers. They may also be due to a large amount of drone comb in the center of the brood-nest during a honey-flow. At such times a normal queen, especially if she is a year or more old, will lay in drone combs almost as readily as in worker combs, and especially so if swarming is in prospect. In modern management there is no excuse for an excess of drone comb in the hive. It is a big waste of bee energy that might be better utilized in the production of worker brood.—Ed.]

Painting Hives while the Bees are in Them

Would it harm the bees or brood to paint the hives with pure white lead and linseed oil while the bees are in the hives? or is it best to move the bees into a new hive while painting the old hive?

Do gentle bees gather as much honey as ugly ones under the same conditions?

Will blooded Italian bees winter as well as hybrid or native black bees under *bad* conditions?

Which is the larger bee—an Italian or a hybrid?

Marshfield, Wis., Feb. 14. JAMES MAXWELL.

[You can paint the hives almost any time, whether the bees are in them or not; but if the painting is done while the bees are flying we recommend leaving the alighting-boards until after they are all in the hives at night. In the morning the paint should be dry enough to make no trouble. Always remember to apply very thin coats of paint well rubbed in.

Gentle bees may gather just as much honey as irritable ones, although it is true there is a danger in breeding for gentleness alone to secure bees that are not worth as much, so far as being able to gather honey is concerned, as other bees that are better hustlers. There is no reason, however, why the best workers in the apiary may not also be gentle.

Pure leather-colored Italians are just as hardy as hybrids, for they came originally from northern Italy,

where the winters are severe. Our experience has been that the extra-yellow Italians are not quite as hardy on the average.

The size of the bee does not depend so much upon the race as upon the strain. If the stock is allowed to degenerate, the bees may be somewhat undersized. It has been claimed that bees reared in combs thirty or forty years old are also undersized; but we ourselves have not been convinced of this.—Ed.]

Five Years Record in Idaho; New Idea for a Feeder

We have had unfavorable weather for bees—some windy days, and too much rain. The first year I kept bees in Idaho I secured 31,000 lbs. of honey from 190 colonies; the second year, 62,000 from 400; the third year, 47,000 from 425; the fourth year, 65,000 from 500. Now in this, the fifth year, I shall do well to get 30,000 pounds from 500 colonies. I have increased to 750. That is some gain. We have worlds of feed. Still, I am not discouraged with the business. If I am once able to keep a stock of supplies on hand I can make a living from just such a year as we are going through.

I wish to give a suggestion for making a feeder. I use the wide entrances. It could be made of tin, and could be half an inch deep and about 10 inches wide by 15 long, so that it could be used in an eight-frame as well as a ten-frame hive. This feeder could be made corrugated, something like an old-fashioned washboard, only deeper. This would prevent spilling as each one of the little troughs would be separate. I think such a feeder could be made to hold from 1½ pints to a quart, and could be shoved right under the brood-nest. If the hive were level it would do no harm if it slanted forward. What do you think of it?

Rigby, Ida., Aug. 9.

L. A. COBLENTZ.

[Feeders of this type have been used, and there is no particular objection except that the syrup so nearly exposed is rather inviting to robbers.—Ed.]

Reply to C. W. Arnett; Sulphur and Salt Treatment for Diseased Bees

In reply to C. W. Arnett's query. Aug. 1, p. 548, I will say that I had one colony that acted the same way. I was at a loss as to the cause and cure. No Himalaya blackberries are there to my knowledge. In July I had a swarm develop paralysis. Hundreds were dead in front of the hive. I began by searching back in numbers of GLEANINGS for a remedy. I found where one apiarist sprinkled salt on the alighting-board. It helped somewhat.

I found, too, that an experienced beekeeper who transferred bees to another hive always effected a cure when sprinkling the entrance with sulphur, and salt did no good. I had to walk to town 2½ miles to get the sulphur. I mixed equal parts of salt and sulphur, and sprinkled the entrance four or five times that day. That ended the trouble.

I then thought I would try the same treatment in case of a colony that was acting similar to C. W. Arnett's bees. It cured that colony, and the bees stored honey as fast again after the treatment.

Colo, Iowa.

MRS. OSCAR TRIPP.

An Average Crop in Dixie

As our season is drawing to a close I want to send in a report on our honey crop from this part of Leedom.

With a very few exceptions there has been about an average crop of honey made in every section throughout Dixie.

Cordele, Ga., Sept. 5.

J. J. WILDER.

Our Homes

A. I. Root

Be still, and know that I am God.—PSALM 46: 10.

What is man that thou art mindful of him? and the son of man that thou visitest him?—PSALM 8:4.

But I say unto you, that ye resist not evil.—MATT. 5:39.

In our issue for Feb. 15 I gave you a sketch of my childhood days; and I mentioned one of my boyhood playmates who was greatly interested in electricity and chemistry as well as myself. In later years our ways were far apart, or since we were about twelve years old. But recently we have hunted each other up, and renewed the acquaintance of childhood. Below is a letter from my old friend "Corwin:"

Dear old friend Amos:—I wish to thank you for GLEANINGS that still reaches me regularly. I read your talks with interest, though, as I have told you before, I can not think that God, who has 8,325,000 suns with accompanying worlds to look after, according to recent estimates by our astronomers, is taking so much interest in you and a lot of young "toughs" who try to annoy you for riding in an old runabout auto. If you would get a six-cylinder, goggles, gauntlets, and a big cigar, and put on some "style" (even if it took a mortgage on the plant), you would not be troubled, and would only have to stop and pick the arms and legs out the wheels now and then. Yes, Amos, I was annoyed in the same way when I was driving my old pet horse years ago. It is all a question of style with the young Arabs.

It seems more reasonable and tangible to think that, when your prayers are answered, it is by some friend who is interested in you on the other side of life. The Rev. Lyman Abbott has said recently that influences come to us from the unseen. There is little that is tangible in your belief, and that is what is the matter with your churches. The little girl's definition in the enclosed clipping is too true.

Discussing the lamentable fact that, according to the last census, half the American people never go to church, Canon Hughes Scott recently said:

"The trouble is, perhaps, that Americans have a wrong idea about the church. They think the church wants them to believe a lot of outworn dogma. That is not true.

"Yes, the trouble is that the people define faith as the little girl defined it in school.

"'Faith,' the little girl said, 'is believing what you know isn't true.'"—Washington Star.

I am enjoying the best of health. No "meats" in mine. T. C. P.

My good friend, don't you suppose you could knock off a couple of millions from the figures you give? And who is it among the scientists and astronomers of the whole human family that have been able to figure out just 8,325,000? Why not say five millions or ten millions? Are we not all getting into pretty "deep water" when we attempt to let our imagination go out into space? Suppose the astronomer is correct, and that there are all of those millions of suns with their accompanying worlds. After having so many, what is there outside? In other words, how far does space extend beyond the heavenly bodies? This is an old,

old question. It has baffled the human mind ever since the world was created; and in contemplating this vast universe, no wonder the Psalmist broke forth in the language of our text—"What is man that thou art mindful of him? and the son of man that thou visitest him?"

It is a stretch of faith, I admit, dear old friend, to believe that God has in mind each and every one of us. We might, for instance, suppose that all of these planets, with their millions of suns about which they revolve, are inhabited like this world of ours, and we might go on and question whether one God could oversee and keep track of it all. With our feeble and childish intellect we might suggest that there are many gods as do the heathen. But would that help the matter any?

There is another text in Isaiah which says, "For my ways are not your ways, neither are my thoughts your thoughts." And in all this groping with the imagination, shall we not recognize or keep in mind that the only one true God is incomparably beyond humanity, even our best specimens, and beyond human comprehension? If we fail to comprehend space, is it not likely we shall in like manner fail to comprehend God? Our days are but few—that is, here on earth, and his are for ever and ever. If all the books on astronomy and theology were collected together they would give us no information that touches or comes anywhere near the Bible, God's holy word. Whatever we may say about the Bible, or think of it, we must recognize that it is unlike any thing else; and it is not only unlike any thing else, but it holds up a higher standard of morals than do all the books together in this world of ours. Wherever the Bible goes, civilization goes with it, and progress also, such as our own nation is making just now.

There are many bad things and bad people in this world of ours; but notwithstanding all this, is it not generally true, as we have it in that brief legend on our coins, "In God we trust," that this great and adorable being has sent just one messenger here to earth—his only Son? and the message brought is not only unlike every thing else, but it is above and beyond every thing else.

We started off to consider prayer. Jesus' little flock of followers were once worried about this very matter of prayer. They came to him and said, "Lord, teach us to pray." While we have all of us repeated

this old prayer so many times that it falls on our ears, I fear, without meaning, it is a wonderful prayer after all. I wonder if the Holy Spirit will give me grace and wisdom to present it to your view from a little different angle or view-point. I have often wondered if the dear Savior considered or waited a while before he gave us that brief petition for a copy. I am inclined to think he gave it offhand. First, he says, "Our Father who art in heaven." What does that mean? First, we are told that God has a dwelling-place, and that his dwelling-place is heaven. There has been a good deal of talk about heaven here on earth; and I am quite in agreement with the statement that we can have both heaven and hell here in this world, and it is largely a matter of our own choosing. Well, Jesus told us that all prayer should be addressed to our Father in heaven. What next? "Thy kingdom come, thy will be done on earth as it is done in heaven." Heaven is not only God's dwelling-place but his kingdom, and God has subjects there. They are loyal, faithful subjects, trusting in him—a place where his will is the constant effort of every one of his subjects.

We might speculate as to what sort of place God's kingdom is. Now, I need not try to explain it, for the dear Savior spent a lot of time in trying to explain to his faithful followers what God's kingdom is like, as we see in the 13th chapter of Matthew. Get the good book and go over it yourself. Now, Corwin, you and I speculated sixty years ago as to what the future would be here in this world, or after we had left the world. I suppose that, during all of our separate lives, we have wondered and conjectured as to what we are here for. What is to be the outcome? What does God expect of us? What did he expect when he created us and gave us our physical bodies and our mental and spiritual intellects also? Is it at all reasonable to suppose that he would lose interest in man, the crowning work of his creation? You and I have witnessed the wonderful developments in electricity, X-rays, radium, etc. Are we to drop it when old age comes on and we pass away? God forbid.

I forgot to mention, when I quoted the first word of that prayer, we are told God is our Father. A father never loses interest in his children. His whole life, as a rule, is spent in making the best provision for them he knows how. God is our Father. Are these busy lives of ours to be all there is of it? Shall we never get a better glimpse of astronomy than we have here from our comparatively small and narrow standpoint in the universe? God forbid. I fully ex-

pect to get a glimpse of these "eight million suns" you have talked about, far, far beyond and above what any telescope can reveal in this world of ours.

Did you ever stop to consider how many times Jesus promised over and over "everlasting life," or eternal life—a life beyond the lives we live here? He kept saying it over and over, in substance, "Whoso liveth, and believeth in me, *shall never die.*"

Now to get back to where we started. Is it possible that God can recognize and listen to us individually with all the responsibilities he has on his hands?

Last night in closing down our wood-working factory some of the machinery gave out. In fact, we are just now at work putting in different boilers and a new engine. I was away when the mishap occurred. When I arrived home I questioned as to whether the hands had been notified that we could not start up our wood-working machinery in the morning, and I fear our people did not consider it as a very serious matter for a lot of good faithful hands to come here with their dinner-pails without expecting they would have to be sent back home. The matter worried me so much that I awoke several times in the night. Twenty minutes before the whistle blew I stationed myself near the entrance at the time desk, and explained to each man and boy the condition of affairs; and with the help of other members of the firm we studied up work that needed to be done about the premises until they all had a job; and I did not breathe easy nor feel happy until each one who wanted work was started. There was seasoned basswood to be taken down from the hill; and in order to have the teams and wagons in readiness I was up before five; but it was quite a responsibility on my old shoulders to plan some useful work for toward a hundred people until the "wheels could go around" once more. Some of you may laugh at the idea of being responsible for only a hundred or less workmen. Down at the Panama Canal, now nearing completion, Goethals had charge of something like ten thousand men. We had to ransack the world, however, to find a man who was great enough and big enough to undertake the task. He is now finishing it, and it promises to be one of the greatest triumphs of the world and of the age. Our country is producing such men; but I confess there are only a few of them.

Now, dear old friend, we might try (but that is about all we could do) to comprehend a being who can lay plans and keep in mind the best good and the well-being of all the people in this great world, or some-

thing like 1400 million. Of this great mass of humanity about 450 millions are Chinese; and my impression is they need quite a little "looking after," with their idolatry and superstition. If I am right, God created them also, and planned a glorious outcome for that heathen nation; and, thank the Lord, that glorious outcome is already in sight. Now, can we not step still a little higher up, and have faith to believe that he who has created the universe will finish the task he has undertaken? * Washington, Lincoln, and other great men of our nation, have been, and our present incumbent is, a believer in God and in prayer to him; and I believe the intelligence of the people of the United States regards prayer as a mighty force in the affairs of the world. Every little while somebody comes to me or writes me something like this: "Mr. Root, your little prayer, 'Lord, help,' has cheered my life and helped me to surmount a lot of trouble." Jesus urged at times almost vehemently that his followers should watch and pray. He says, "Ask, and ye shall receive;" and he tells us also that "the Lord pitieth them that fear him."

Now a word in regard to the "street Arabs," as you are pleased to call them. I want to say to our readers that I can imagine a twinkle in the eye of my old schoolmate when he speaks about picking

the "arms and legs" out of the wheels, etc. I admit these small boys are often provoking. Now, we who are older should keep constantly in mind that boys can be taught like ducks and chickens. A little teaching prompted by the Devil would induce them to puncture your automobile tires and do other mischief to the machine. Another kind of teaching will make those boys your friends instead of enemies.

I once became discouraged about a boy whom I had labored with repeatedly, apparently without success. A Christian lady said to me something like this: "Mr. Root, Jesus died for him." It set me to thinking. When we feel vexed and provoked at these boys' antics, let us stop and consider that Jesus died for them. He died that they might be made better.

I am soon to go back to my Florida home, and I suspect I shall have more trials along this same line. Satan has found out that he can trip me up, for he has tripped me up in times past. Dear friends, you who believe in prayer, and have had your prayers answered, will you not pray for me and for those boys, all of them?

Now just a word in conclusion about unpromising boys. In looking back through sixty years I remember quite a few that I pronounced at the time "no good." But years after, when I heard from one and another that they had climbed to positions of excellence, it was one of my "happy surprises." One especially I have in mind that vexed me repeatedly because of his awful indifference and heedlessness. I have just been told that he has made some valuable invention worth thousands of dollars to manufacturers of automobiles. I said when I first heard of it, "Why, no; it can not be that that boy has become a great inventor?" Perhaps I did pray for him in his youth, but if so I am seriously afraid I have forgotten about it.

Shall we not wind up, dear friends, with that beautiful injunction from the dear Master, so wonderfully hard for poor humanity like you and me to carry out? "Love ye your enemies. Do good to them that hate you. Bless them that curse you, and pray for them that despitefully use you."

Blind unbelief is sure to err,
And scan his works in vain;
God is his own interpreter,
And he will make it plain.

Later.—Just after the above was dictated, this letter was placed in my hands, and from it I make extracts of three paragraphs:

Dear Sir and Friend:—Yesterday's mail brought me from some source a marked copy of *The Flaming Sword*, covering a four-and-a-half column of super

* Now, while we are contemplating the great Ruler of the universe let us try to comprehend that this Creator is also *Father*; and while doing so let us listen to the words of the dear Savior when he says (Matt. 10:29, 30, 31), "Are not two sparrows sold for a farthing? and one of them shall not fall to the ground without your Father. But the very hairs of your head are all numbered. Fear ye not, therefore; ye are of more value than many sparrows." With all God's care of this vast universe, is it not comforting that we are in his sight of more value than many sparrows? If we reject those beautiful words of the Master as too wonderful and too impossible (if you will excuse the expression) what shall we do? Do you remember what Peter said when the Lord asked them if they too were going to turn away? "Lord, to whom shall we go? Thou hast the words of eternal life."

Our older readers will recall that I have often mentioned a small particle of radium that I have had in my possession for several years. Suppose you take a cambric needle and touch the point to a drop of white paint. With a magnifying-glass you could just see a speck of paint on the needle-point. Well, my particle of radium is about the size of that speck of paint. It can be seen only with a magnifying-glass. But, small as it is, it has been day and night, winter and summer, year after year, throwing out showers of shooting stars. They continue to pour forth in every direction like a water-spout, and yet the radium is not exhausted. The "bombardment of meteors," as it has been called, is in no way diminished. I put it in a dark room three or four days ago, and got up in the middle of the night, and there it was blazing forth in undiminished splendor. So far as I know it will go on in this way for ever and ever. Scientists are nonplused and appalled. It upsets and overturns old theories. Now, is it too great a stretch of the imagination (backed by the words of the dear Savior) to believe that God's love for the creatures of his handiwork—for mankind, his greatest and final creation—is it too great stretch of our faith to believe that God's love and care can go out unceasingly in the same way toward his children?

ficial absurdity in an attempt to ridicule your belief and that of the Christian world in the power of prayer.

The mother or father can think and speak from a living soul-inspired experience on the intensity of parental love. To all others, the measure is one of imagination and speculation. So with the Christian soul in the realization of the Father's presence as the guiding influence of his life. He has an inward knowledge of the power of prayer and the assurance of an answer that mystifies the groping speculator and puts the cynic to confusion. [Amen to the above.]

Just one more question: How long would it take

for *The Flaming Sword* species of reasoning to abolish slavery, wipe out the white-slave traffic, or accomplish any other moral reform?

LEWIS P. TANTON.

Charlottetown, P. E. I., Can., Nov. 23, '12.

Perhaps I ought to feel complimented to think that any periodical should devote four columns to try to set me right. But I think it would take a great deal more space than that to persuade devoted Christians that God does not answer prayer.

High-pressure Gardening

"HIGH-PRESSURE" GARDENING IN OCTOBER.

Let us not be weary in well doing; for in due time we shall reap if we faint not.—GAL. 6:9.

There are a good many disappointments—yes, grievous disappointments—in gardening. We might expect, however, that in high-pressure gardening we get rid of the disappointments. And it *does* get rid of a large part of them, but not all. In our locality here in Medina, along the last of September and during October, much trouble comes from frost. I was particularly anxious this year that the frost should hold off because of the dasheens I have told you about; so I was watching the thermometer and barometer with great anxiety whenever there came a cool night. Do you want to know what the barometer has to do with frost? Well, it is this: Along in the fall of the year especially, the barometer usually drops for a warm spell, and rises for a cool spell. When it runs away up, oftentimes a day or two before, it indicates a probable frost. On the 22d of September there was a little frost on the boards and other exposed places. Next morning I told the children that I could tell before noon pretty surely whether we would have a frost. The barometer was rushing away up, indicating a clear sky. The wind was in the northwest, and by 3 o'clock the temperature was down to 50.

One of our rules in the care of tender stuff is that, when the mercury stands at 50 or below at sundown, there is danger of a frost. This is not always true, but it comes so near it that it is pretty safe to rely on. Well, after three o'clock I told them all to hunt up their empty jute grain-sacks and cover up the stuff. The dasheens were my principal anxiety. I found two large sheets which we use to cover stacks of grain, etc., which I spread over the dasheens as well as I could. But they were so tall that the sheets were not large enough to tuck down around the edges. The consequence was, the dasheens were nipped almost as badly

under the sheet as elsewhere. After the frost was over, however, and the sun was up so I could see how much they were damaged, I went round with a sharp sickle and cut off the injured leaves. I think this was a profitable thing; for where I missed a leaf or portion of the stalk that had been frosted, it rotted down quite a piece beyond it. Where I clipped off the injured part, the stalk as well as the leaf, the effect was nothing more than a severe pruning; and when a longed-for shower, right after we had been having a severe drouth, came on the 28th, and lasted two or three days, the dasheens picked up amazingly; and to-day, Oct. 11, most of them have put out new leaves, and seem to be growing almost as well as before the frost, for we have had almost two weeks of real summer weather since the big rain of September 30.

Now, just below the dasheens were the six tomato-plants that I have mentioned—Green's hybrid. These plants were loaded with green fruit when the frost came, or, rather, they were sprawling all over the ground, full of fruit almost ripe.

Now, here is a matter that comes in, in regard to training tomatoes on a trellis. When I saw the enormous amount of tomatoes they were going to give us, I felt sorry to think that these were not trained on a trellis; but when the frost came, I saw at once my clean hard clay ground was the thing after all. All I had to do was to get a lot of empty burlap grain-sacks and blanket the plants. Although the surface of the sacks was white with frost, the tomatoes were not hurt a particle. You see, the warm ground was a protection from below, and we have been having basketful after basketful of the finest tomatoes of the season, notwithstanding the big frost. The warm sunny days, with a temperature a few times up to 85, just suited the tomatoes. Below the tomatoes were the cantaloup melons I have spoken of. I did not have grain-sacks enough to cover these; but, al-

though the frost killed the green foliage, the warm ground kept vitality enough in the vines to ripen up the cantaloups finely; and I have been having a nice cantaloup with my apples for my five-o'clock supper all through September and the first week in October, and all that from a five-cent package of seeds and some of that rich old rotted stable manure I told you about. The same is true with the Hubbard squashes. There are twenty-six, most of them great beauties, from a five-cent package of seed.

Lying close to the dasheens were our Early Ohio potatoes. When I soaked up the ground between the rows of dasheens with this heavy mulch of old manure the water flowed on to the rows of potatoes, and we had a big yield; but, sad to relate, the heavy application of stable manure made them so scabby, crooked, and ungainly, that many are almost unfit for use. Both the Early Ohio and Early Rose potatoes are bad on our ground in respect to scab; and although I am a potato crank, or used to be, I have not dared to show to visitors nor to anybody else my crop of potatoes. But, just wait a little. I have something else to tell you about potatoes. Before new potatoes were fit to dig we purchased some fine handsome Carman No. 3. They may have been only the Rural, of which the Carman is a seedling, but a much handsomer potato. After we began digging our new potatoes there were a few of the Carmans left in the cellar; and although it was the middle of July I decided to plant them. I had one row up near some tall evergreens. When I planted them I had a kind of feeling that I was wasting my time, because I thought the evergreens would rob them of moisture and fertility. Well, when the frost came they were growing very luxuriantly; but although the branches of the evergreens did not reach very near the potatoes, in some way the big trees kept off the frost, and the potatoes grew right along until this morning. As the vines were dead, I dug the potatoes, and it was one of my "happy surprises" to find great beauties, almost as smooth and handsome as new-laid eggs, and not a trace of scab anywhere. Just a few days before, Mrs. Root urged me to grow potatoes on some other ground, because our garden had grown potatoes ever so many years, and the ground must be badly infested with scab. Now, can anybody tell me why these Carmans escaped scab entirely? Was it because they were planted so late, or had the branches of the evergreens something to do with it? Was it because the potatoes were of a different variety? I should be glad to know.

Just below the cantaloup melons there

were six egg-plants, and to them too was given some of that old manure; and I think some of the water from my irrigation got down there. We had a dozen of the largest and finest egg-plant eggs I ever saw. One was so large that we divided it up and sent parts to our neighbors. These too were made to give a big yield of fine eggs, in spite of the severe drouth, by digging the dirt away from each plant clear down to the fine white hairy roots. Then the manure was sifted down all through these roots, and the whole well soaked up with a watering-can, and soft dry dirt was hoed up after the watering.

The success I met with almost all of my crop has required some hard and faithful work; but the hard work, taken a little at a time, was just what was needed to give me inspiration to make these pages you are looking at helpful. Is there not a wonderful truth in the latter part of my text—"In due time we shall reap if we faint not"?

"HIGH-PRESSURE" CORN CULTURE.

Some years ago, on a visit to our Ohio Experiment Station, I was shown a long field of corn. The field was long enough so that each row was planted entirely with a single ear of corn. The professor who was with us called our attention to one row that stood almost entire the full length of the field, with scarcely a broken stalk; but owing to a hailstorm a few days before, the rest of the corn was broken more or less. Some rows were almost or quite all snapped off by the wind. Now, by selecting seed from this row that stood the blast we could readily get a field of corn that could not be easily blown down. But in getting such heavy stalks to stand the blast, we might cut down the number of bushels. They were then experimenting on this very thing, and the matter was dropped to look at something else. Well, the periodical called *Corn* (Waterloo, Iowa) has a wonderful picture in its October number. A like number of kernels were taken from two ears of seed corn. The corn from one ear gave a bushel box full heaped up—stacked away above the top. The corn from the other ear, side by side, and exactly the same treatment, gave only a peck of inferior corn. What do you think of that? When a farmer goes to his cornerrib and selects his seed corn, there is no way in the world for him to tell by the looks what ear will give a peck and which will give five pecks. The farmer who takes time by the forelock, and plants some whole ears a year or two years before, and saves seed from the ear that gives the biggest yield of nice corn, will,

by keeping this up, soon have a "pedigree" strain of corn that might not only give him double the crop, but four or five times as many bushels as if he stupidly followed luck and chance. Dr. Miller, in one of his *Stray Straws* for Oct. 15, calls attention to this same thing; and it is going on, not only with field crops, but in our egg contests that are now being exploited, and reported all over the world.

From every State comes the complaint that, while experiment stations are making such wonderful discoveries, and taking such pains to send out bulletins to the farmers, a great lot of these same farmers never visit their State testing farm at all. Over and over again I say to my farming friends, "Surely you have been down to the big farm at Wooster?" Almost invariably the answer is that they have talked about it but have not had the time. Sometimes this is the case when they could get there in two or three hours. The Department of Agriculture, recognizing this, is now, at least in some States, sending competent men around among the farmers to teach them high-pressure farming. You need not come back to me and say the farmers sometimes know more about farming in their own locality than the government experts. Look at that picture I have referred to in *Corn*, and then own up that you have been stupidly farming with your eyes shut—yes, with your eyes really shut to what is going on in developing new and better strains of seed corn.

THE LOGAN BERRY, OR BLACKBERRY RASPBERRY.

Some years ago I was greatly pleased with the Logan berries of California. In fact, they were so plentiful (and I presume they are yet) that they were on all the fruit-stands in the streets of Los Angeles. They tasted much like a great big luscious raspberry more than any thing else I can think of, and very much resembled the Northey blackberry that I made such a fuss about down in Florida. By the way, it is no more than fair that I should tell the readers of *GLEANINGS* that there has not been a good yield of this wonderful berry since I gave it such a write-up. Anthracnose, or something similar, attacked it on my ground, and on the grounds of my neighbor. Neighbor Raub, who, however, had two or three small clumps of berries in his garden to which he gave extra care, fertilizers, and watering, got some beautiful nice berries. Spraying might remedy the trouble; but I have not been able to learn whether anybody has tried it. Well, now, let us go back to the Logan berry of Cali-

fornia. Several have been inquiring of late in regard to it. Green's *Fruit Grower* says it has not been a success in the East, nor in cold climates, so far as they can discover. But there is no reason in the world why it should not be a success in Florida, unless, indeed, this same anthracnose should attack it. I am going to submit the matter to friend Reasoner, of the Tropical Nursery. By the way, the berries are so plentiful that Sears, Roebuck & Co. catalog the canned berries. A good-sized can is only 20 cts., and they are certainly a most delicious fruit, larger, if any thing, than average blackberries.

DASHEENS: THE FINEST IN FLORIDA EXCEPT THOSE AT THE BROOKSVILLE GOVERNMENT STATION.

Mr. Root:—I send you a picture of my dasheen, taken Sept. 13. The plants average between six and seven feet high, and cover the ground completely. The tops have not grown perceptibly for several weeks past; but the tubers are forming rapidly, and promise a heavy yield.

The soil on which they grow is a well-fertilized humus-filled sand. I ridged the soil with furrows about six feet apart, planting two rows of dasheen to each ridge. The soil is so moist that there has been more or less water in the bottom of the furrows all summer.



Neighbor Ault's dasheen, with a glimpse of friend Ault and the banana-plants in the background, just above his head.

As to the quality of the dasheen as a food, we have boiled and roasted them; and while they are fine grained, and of fair quality, we prefer a good Irish potato. No doubt they will be more palatable when fully matured.

Bradentown, Fla., Sept. 30.

Later.—A man by the name of Young, representing the State Agricultural College at Brooksville, called to-day and took some pictures of my dasheen. Mr. Young noted the size of the plants and the method of cultivation, soil, etc., and he said that he regarded my patch of dasheen as the best in the State, with the exception of some at the college farm at Brooksville.

When I asked Mr. Young his opinion in regard to the food value of the dasheen he said he thought it was going to be of great value, especially to Florida. He said the dasheen is at its best when fully matured, and when dug they should be aired and dried for a few days.

We have had no rain, until now, for several days, and the air to-day was delightfully cool and pleasant.

Bradentown, Fla., Oct. 3. ARTHUR E. AULT.

The above corroborates what I have said about dasheens before perfect maturity. They are very fair eating, but nothing like the hard, solid, matured tubers sent me by the Department. The young shoots, however, and tender leaves, are all right, and make a very good substitute for mushrooms or oysters, with a few crackers added. The writer of the above, Mr. Ault, is a near neighbor of mine; in fact, his place is just on the other side of my fence. The dasheens he mentions grew on the same damp piece of ground where I found those wonderful Northey berries described in GLEANINGS about two years ago.

DASHEEN SEED—WHY IS IT NOT IN OUR SEED CATALOGS?

Ever so many are asking the above question; and for the first time I find a brief mention of it in a seed or plant catalog for the spring of 1913. This catalog of plants has just this brief mention, and nothing more:

"Dasheen, similar to the caladium, 10 cents each."

As the question recently came up in GLEANINGS as to how long dasheen could be kept for seed, the following letter answers the question:

Mr. A. I. Root:—Here is a dasheen of last year's growing, which I am sending you to show its keeping qualities. It passed the winter in the cellar in a basket with the rest of my crop, and has been lying through the summer neglected on a shelf in the cellar. So far as I can see, it is still perfectly sound and able to grow, unless for the fact of its bud having been broken off. I broke it off to see for sure whether it was still fresh.

The root, as you see, is very small. It had to undergo a dry summer in dry ground, so that the plants attained a height of only about seven or eight inches. The roots were, therefore, all small, but were solid, kept well, and grew vigorously when planted. They are of the Japanese variety. This year I planted also some tubers of a West Indian variety, which supposedly is not so well adapted for so far north as this, yet they are making a slightly

heavier growth than the Japanese; and the Japanese, in spite of the excessive drouth, have done better this year than last.

B. C. AUTEN.

Oronogo Fruit Gardens, Carthage, Mo., Oct. 1.

The above came to hand in perfect condition apparently, and I think there is no question but that it will grow; and if so, this settles the question that, when properly cared for, the seed will keep as long as a potato, or perhaps still longer.

Please note what I told you last winter—that where the bulbs are dry and hard it ordinarily takes three or four weeks for them to shoot up through the ground.

DASHEENS GROWN IN OHIO; E. C. GREEN, OF THE HYBRID TOMATO, GIVES HIS OPINION.

Friend Root:—Thanks to your kindness, a few days ago I enjoyed a treat that I think would have pleased many of the readers of GLEANINGS—a meal of Ohio-grown dasheens. The tuber we boiled as we did potatoes, which was, perhaps, not best; and as they were not ripe yet, they did not please us as well as good potatoes. But the tops cooked as asparagus were a "happy surprise," for thy compared favorably with mushrooms. When the fall-bearing strawberries were introduced I did not get as enthusiastic about them as many, for I thought if they came in competition with peaches, pears, grapes, etc., they would have a hard time; and this has proved true, I think. So with the dasheen. The tuber which will have to compete with the common and sweet potato will have to be extra good; but if the tops compare only with mushrooms they will certainly be a fine thing, for it is always hard to get enough mushrooms.

Stephen (my son) was up from the Experiment Station when we had them cooked, and he said, "We shall certainly have to try them at the Experiment Station next year."

Medina, Ohio, Oct. 15.

E. C. GREEN.

I will explain to our readers that I gave neighbor Green a whole plant, of course not fully matured. I think it was the large central corm he boiled as stated. These we do not find very toothsome; but the side tubers cooked with or without the green stalk and stem we think splendid food, and we are having them almost every day.

THE AMADUMBE, THE DASHEEN OF SOUTH AFRICA.

SEE PAGE 740, OCT. 15.

Mr. A. I. Root:—Whether these amadumbe will prove to be identical with some of the dasheens that you have I shall be interested to learn. Note every one who tastes them for the first time likes them very well; but not only natives, but children of missionaries and of settlers, who are brought up with them, are very fond of them. These are several varieties here that are eaten, and others that are so coarse and watery that they are not considered fit to eat. These are of the variety that we consider the best.

W. L. THOMPSON, M. D.

Mount Silinda, Melsetter, S. Rhodesia, S. Africa.
August 30.

TOMATOES—HAVING RIPE ONES IN NOVEMBER.

My wife and I take and clean or wipe them off (the green tomatoes) before the frost gets them, and then wrap them carefully in tissue paper and lay them in small baskets only two deep, and store away in a dark cool closet, and about Thanksgiving they will ripen, or sometimes later.

Cleveland, Ohio, Oct. 13.

JOSEPH BECVAR.

CEMENT HOT-BEDS, ETC., FOR EARLY TRUCK.

On page 589, Aug. 15, I spoke of James Hilbert's cement hot-beds or cold-frames. You will gather from the clipping below, from the *Grand Rapids Press*, that he has made quite a success by starting stuff under glass and carrying it to market with a motor truck.

HE GETS \$400 AN ACRE FROM TRAVERSE FARM; JAS. HILBERT, USING MODERN METHODS, WINS BIG YIELD FROM VARIOUS PRODUCTS; HAULS WITH THE MOTOR TRUCK.

TRAVERSE CITY, Oct. 3.—That intensive farming in western Michigan pays has been conclusively proved by James Hilbert, who owns a large farm northwest of the city. Last spring he planted an acre of Osage muskmelons, the plants of which he started under glass in order to have them ripe in time for the fall market.

During the summer the plants secured a good growth, and on Sept. 1 he brought his first load to town and sold them to the merchants. Since then he has marketed a load every day; and after he had sold his load to-day his figures show, after having kept a careful record, that he has made \$300 from the crop from this acre of land, and still has several more loads to market before the total crop is harvested.

USES MOTOR-TRUCK.

Good as this record is, he has done still better with a third of an acre of mango peppers from which he has already marketed a product that has brought him \$170, and they are not all harvested yet. He is even prouder of the returns he has received from an acre of Earliana tomatoes, from which he has supplied the local trade during the season. This acre has done better than his acre of melons, for the total receipts for the season reached the \$400 mark.

Mr. Hilbert delivers his produce to the merchants daily, bringing in every morning a motor truck load of all kinds of vegetables and fruit in season, and he is looked up to by the grocers as one of the essentials of their business. His farm is also famous for the onions he raises, and which he keeps in a large frost-proof cellar and brings them to town as they are needed by the grocers. Mr. Hilbert pretends to be no more than an ordinary farmer who gets results by knowing his business and sticking strictly to it at all seasons of the year. In keeping his books he has as perfect a system of accounting as any mercantile house, and does nothing by guesswork.

GARDENING FOR "PROFIT."

After what I said about gardening for profit in our issue for Sept. 1, I came across the following in the *Rural New-Yorker*:

On many farms you may find an old man or a man in poor health, or perhaps a cripple. These men are usually unable to go into the field and do a full day's work at hard labor. Some of them, denied the power to do this, feel that life has cast them aside, and I have seen them grow unhappy and bitter at their prospect. If these men would but think so they could take a small piece of land, fit it for a garden, and do wonderful work upon it. The labor would be well within their powers, and the results far beyond any thing they ever reached at plain farming. For you see gardening is higher farming; and many of these older men would renew something of their youth and courage in the thought that they can force one acre to produce more than ten acres ever did in their old system of culture.

Not only would this garden become a wonder, but it would finally improve the entire farm. It would be an object lesson showing what can be done if the soil is only well handled. Before long the boys would see that garden, and begin to ask themselves why they should work three acres in half-way fashion when, by applying something of garden culture, one good acre would give the same crop. That is what a good garden will do; and the older man would find that this higher farming has enabled him to influence the farm as he never did before. These are only a few reasons why every farm should have a good garden. Had you been with us for dinner on the Sunday I speak of I could have piled up your plate with a dozen convincing arguments.

Do you see the point, friends? These old men, after they get through gardening for profit—that is, for dollars and cents—may work (as we read about in the good book) for treasures laid up in heaven; for whenever we get to a point in our lives where we are working for humanity and the coming generations is it not really for "treasures laid up in heaven where moth and rust doth not corrupt, and where thieves do not break through nor steal"?

NOT ONLY A BOYS' CORN CLUB BUT A GRAND-FATHERS' CLUB.

We clip the following from the *Monthly Bulletin* of the Ohio Department of Agriculture:

My dear Mr. Sandles:—I have just been reading your hair-raising report of the "boys' corn-growing contest," and am glad of the "boys' corn-growing." But it pains me to think and know that in Ohio there are hundreds of boys who never saw a hill of corn grow.

This year I wish the poor and honest lad could be placed on a par with the rich man's son. What do I mean? Why, I mean this: If a boy produces 60 bushels of corn at a cost of 15 cents per bushel, I claim he has achieved far greater results than the lad who produced 100 bushels at a cost of 50 cents per bushel. Let the lad who has nothing to buy fertilizer with stand on the same footing with the boy who has fertile soil and a rich father to back him. Again, why not have a "grandfather's club contest," all over 60 to enter? Give them a chance to see Washington. They will soon pass over the "Great Divide" into the border land. "Oh!" I hear you say, "their lives are almost spent, and they are not worth fooling with." Listen! Perhaps they were handicapped. Lack of capital; lack of ambition, hampered by richness, environment, and barren soil, they were not able even to flirt with success, let alone win her approval or favor. No grander, no greater, nor nobler sight could I behold than 88 gray-haired fathers, one from each county, taking their first and perhaps last trip to Washington, D. C., because they had raised the cheapest big yield of corn in their respective counties. What do you say, Brother Sandles? And we ought to offer a prize to the dear old grandmothers. God bless them! Let them raise a prize flock of chickens, or be a keeper of the tidiest and neatest home.

I am only a plain, seven-days-in-a-week farmer.
R. B. CARSON.

Amen to the above. But do not forget the dear old grandmothers while we have the grandfathers in mind.

Poultry Department

THE AJAX INCUBATOR; A CHEMICAL WHICH GIVES OFF OXYGEN WHEN BROUGHT IN CONTACT WITH WATER, ETC.

Mr. Root:—I read with great interest your note in regard to incubators, on page 18, of Special Notices in GLEANINGS. Exposing frauds based on pretended scientific discoveries which the common people do not understand, but think that, if it is "scientific," it must be all right, has always been a favorite work of mine, and I have exposed some notable ones, as I think your W. P. Root knows.

That the "Ajax vitalizer" has any good grounds for its claims I greatly doubt. I doubt the main assertion that eggs under a hen get more oxygen than those in an incubator. On general principles I should say that the opposite would be the case. But in regard to the tablets which give off oxygen when brought into contact with water, there are several substances which do this, the most notable being sodium peroxide. This, when fresh, gives off oxygen with such energy as to set fire to some combustibles; but I should not think it would be well adapted to the purpose in question.

Paterson, N. J., Sept. 20.

JOHN PHIN.

I did not mean to say there *is* no such substance; but in talking with those fairly well versed in chemistry they said they knew of none. Now, this apparatus for supplying oxygen to the incubator is supposed to throw a steady stream—just enough and no more to give the eggs vitality and to keep it up during the last two or three days of the hatch. I might explain to our readers that friend Phin has a lecture that he delivers in regard to the different methods of producing fire during all the ages past up to the present time. As a chemist he is well known in scientific circles. In our town of Medina we are using natural gas; and a little instrument costing only ten cents makes a light by rubbing a certain alloy over something like a file, somewhat like the old-fashioned lighting by means of flint and steel. The little ten-cent implement is kept close by the gas jet, and it saves both time and matches.

Later.—After the above was dictated the following came to hand:

I note what you say in regard to the Ajax vitalizer, which I have no doubt is as worthless as you believe; but there is a chemical made that liberates pure oxygen when brought in contact with water, just as carbide liberates acetylene gas. It is called "oxone," and is used to produce oxygen for the oxy-hydrogen light used in stereopticons and moving-picture machines. I know this because my firm sells it for that purpose, and I have so used it.

Louisville, Ky., Sept. 30.

W. C. FURNAS.

I have been hoping to get some good reports from this apparatus that has been so highly extolled in advertisements. The following, however, does not look very much that way, especially as it comes from such good authority.

In the April 15th issue of GLEANINGS you write up the "Ajax Oxygen Vitalizer." I wish to say I gave a thorough test on my Prairie State incubators, and they did not improve my hatch any; in fact, I

got better hatches without them. I gave them a thorough test, as I ran 35 machines; so you see I am in position to make a test.

Pleasant Valley, N. Y., Oct. 18. EDGAR BRIGGS.

COOKING FOOD FOR CHICKENS—ESPECIALLY THE GRAIN.

I very much enjoy reading your department in GLEANINGS, and find your poultry articles very practical and helpful. I have a way of economizing on cost of feed which has saved me a good deal of expense, so I will pass it along to you and your subscribers. My "secret" is to cook the wheat, which makes more than double the quantity when cooked. A quart of this cooked wheat will feed just as many hens as a quart of uncooked wheat, though of course it really was less than half a quart before cooking; and, besides, the hens seem to enjoy it better. I cook it in a wash-boiler on the kitchen stove when my wife is baking, so she uses the oven and I use the top of the stove, and it doesn't take any extra fuel and, besides, the hens seem to enjoy it better. I cook water to five quarts of wheat, and let it cook until dry. Sometimes to make it especially good I add meat scraps and red pepper, always a little salt. When I feed it I stir in some bran or alfalfa meal, and I give it to them in troughs or pans.

When the weather is as cool as it is now, I cook enough for three feeds at one time. It must not be kept till it sours. I use this only for the evening meal, making them work for their breakfast.

I keep thoroughbred White Leghorns exclusively, because I think they are the best layers in a warm climate, and are beautiful to look at out on the green grass. They are also beautiful in the show-room.

This fall at our Arizona State Fair I exhibited some of mine, and won several blue ribbons and the sweepstakes prize, a fine silver cup. Perhaps you would be interested in hearing of the record I made last year.

Starting Dec. 1 with 110 hens, I raised 95 pullets; and in August I sold some old hens, so the latter part of the year my flock numbered 150.

I sold 15,564 eggs. Of these 4249 went to the incubator trade for hatching, and the others were sold at prices ranging from 15 to 50 cts. per dozen. For all eggs sold during the year I received \$394.50 for hens, and fryers \$85.45—a total of \$479.95. Besides this we had eggs and poultry for home use. Of course the cost of feeding had to come out; yet even then it left me a nice profit.

Hens pay well here, but I believe that good hens well cared for are a profitable investment almost anywhere.

I hope you may live to see that hundred years—any way, a long time yet to continue your noble work of fighting the evil and encouraging the good.

Phoenix, Ariz., Dec. 2.

C. H. TRID.

My good friend, I supposed our experimental stations had decided by careful experiments that it does not pay to cook the food for poultry or other farm animals. A few years ago, as you may remember, there was a great craze for cooked food for domestic stock, and cooks were on the market for cooking, steaming, etc. Now, from the result you have given in the way of dollars and cents, we can not very well dispute your theory. From one to two dollars' profit from each laying hen in the year is certainly very good business; but if I am correct you have gone considerably beyond the highest figure.

Temperance

WOMAN SUFFRAGE—WHAT IT IS DOING FOR CALIFORNIA.

Mr. A. I. Root:—I am sending you under separate cover a copy of my local paper which contains the result of an election just held in our city. The liquor business was put down in this city about 18 years ago, and they have been fighting to get in again ever since. A few years ago they succeeded in electing a board of city trustees that gave the hotels and drugstores a license, after the advisory vote of the people was given against such a policy. Two years ago the people put the same board of trustees out of office by a majority of 450 votes, which was telling them most emphatically that they had not kept faith with the voters.

The present election was called by initiative petition circulated by the liquor interests, who called themselves the temperance party. This is the first time the issue has been clearly defined, and a fair and square vote taken. Notice what we did to them. We give the women due credit for this wonderful victory.

Redlands, Cal., Oct. 1. P. C. CHADWICK.

We should be glad indeed to give the full account of the reform the women have brought about in Redlands (as given in the clipping), but it is too long. No wonder the brewers and wet politicians are fighting woman suffrage. See below.

REDLANDS, CAL.; ALMOST THREE TO ONE AGAINST INTEMPERANCE.

Dear Mr. Root:—The temperance people of Redlands won a great victory Sept. 30, deciding by a majority of almost three to one against hotel permits and a wholesale liquor-house. For years our city has stood for good citizenship, for public improvements and moral uplift. Redlands has about 12,000 inhabitants, and is primarily a city of homes. Here people can safely come to educate their children. There are splendid churches, excellent public schools, and a fine university. We hope other cities will be encouraged by our success in routing King Alcohol, and "go and do likewise."

Redlands, Cal., Oct. 7. M. G. VAN LOAN.

Well done, my good friend. When cities of 12,000 inhabitants abandon the liquor-traffic we are certainly making headway. It seems that the good women of Redlands *did* have something to do with this. May God be praised for such victories. I think every time I visit California I have enjoyed seeing Redlands grow. When Mrs. Root and I were there, there were orange trees planted along the streets outside of the walk, and visitors were permitted to pick the fruit—at least that was the case on some of the streets.

GOD'S KINGDOM AND SATAN'S KINGDOM.

The *American Advance* as well as the *American Issue* is giving us abundant evidence of the coming of God's kingdom. See the following from the *Advance*:

Chancellor David Starr Jordan, of Stanford University, says, "The future city will no more allow an open saloon than the present city allows an open

cesspool. Every community has the same right to destroy its saloons that it has to kill its rats."

As an evidence, also, that Satan is pushing things, we submit below another clipping from the *Advance*:

"If the fight with prohibition goes to the last ditch, the great cities will be found aligned against the rural districts in a final struggle to eliminate the liquor traffic," declared Col. Jacob Ruppert, of New York, President of the United States Brewers' Association, at their annual convention at Atlantic City.

The launching of a national propaganda to fight prohibition in every stronghold was one of the chief topics thoroughly considered.

E. A. Faust, chairman of the Crop Improvement Committee, said:

"Within the next decade it is possible that the beer sales of the United States will reach 100,000,000 barrels annually."

MORE THAN HALF OUR TERRITORY AND MORE THAN HALF OF OUR PEOPLE NOW ON "DRY GROUND."

Out of the middle of a letter received from Wayne B. Wheeler, Superintendent of the Anti-saloon League, I clip the following:

"Seventy per cent of the territory of the United States is now dry, and nine States are dry. Forty-six million people live in dry territory, and a nationwide fight is on."

"CAN YOU AFFORD IT?"

I hate drunkenness; but I do not hate the drunkard.

If any man should have our friendship it is the man who has failed to be a friend to himself.

The fact is, the victim of strong drink often has all the virtues—including high intelligence and a tender, sympathetic heart—and yet when the demon Drink clutches him, his will is paralyzed and Satan is in the saddle.

A few weeks ago I visited San Quentin prison and talked with a man in the "Death Row" who has since been hanged.

"It was drink—just drink," he told me. "I was crazy. I was jealous, and I shot her. Then I shot myself. She died quickly. I recovered to be sent here. Next week I die. She was a beautiful, honest, loving wife to me, but drink had destroyed my reason."

I said nothing—what could I say? But I realized that the slow, lingering death of a drunkard's wife is no more tragic than the quick taking-off by knife or pistol.

The worst about strong drink has never been told. It can not be told—it escapes the limitations of language.

But I think we err in despising the drunkard. Our hearts should go out to him in pity.

A part of his hallucination often is that he is not a drunkard. "I can quit any time," he says. But he who says that seldom quits until death stops his mouth with dust.

"Wine is a mocker, strong drink is raging; and whosoever is deceived thereby is not wise." So said Solomon, a thousand years before Christ.

And the drink problem is upon us to-day, just as terrible, just as tragic, as it was then.—ELBERT HUBBARD, in *The May Cosmopolitan Magazine*.

Gleanings in Bee Culture

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Editorial

THE editor of this journal expects to attend the convention of the Ontario Beekeepers' Association, at Toronto, on Nov. 18, 19, and 20. See program in convention column. He also hopes to attend the New York State convention, Dec. 2 and 3, at Rochester; and, later on, the Iowa State meeting, Dec. 10, 11, and 12; at Des Moines.

DEATH OF I. R. GOOD, THE INTRODUCER OF THE GOOD CANDY FOR MAILING QUEEN-BEES.

SOME twenty-five or thirty years ago Mr. I. R. Good was more or less of a contributor to these columns. During this time he, like A. I. Root, was experimenting with new things. While A. I. R. was fussing with water-bottles so that queens could be sent by mail in connection with hard candy, I. R. Good was working in another direction—namely, that of making a soft moist candy which would not require the use of water; and it was so much of a success that it has been used clear up to the present time, and we may never find any thing any better. A. I. R. immediately dropped the hard-candy proposition and adopted the Good candy in his queen-cages. So successful was he with it that he became very enthusiastic about it at the time. Other queen-breeders adopted it until its use became almost universal; for Mr. Good was Good enough to give this valuable idea to the beekeeping world; and now that he has passed away we are in duty bound to recognize his contribution to the onward progress of bee culture in this country. It is proper to say, however, that Mr. Good was not, perhaps, the original discoverer of the method for making soft candy for bees. One Scholtz, of Europe, seems to have had a little priority; but Mr. Good should have the credit of introducing the candy into the United States. Mr. Scholtz, if he *was* the original discoverer, probably did not know the value of his discovery, while Mr. Good did, and immediately made it available to the beekeeping public of the United States. In so doing he conferred a great favor on his brother-beekeepers.

Mr. Good thought enough of his friend

A. I. Root and GLEANINGS to name his son Amos I. Mr. Good adds that his father "fell asleep in Jesus" on Sunday morning, Oct. 5 last.

OUR CARLOAD OF BEES ON THE WAY TO FLORIDA.

BEFORE this reaches our readers we shall have a carload of three hundred colonies on the way to Florida. One of our most experienced men will go with them, and we are going to try out the proposition of making the bees stay on the job ten months in the year instead of only five. Every Northern beekeeper knows that his capital—his bees, hives, and appliances—have to be idle in winter quarters anywhere from six to seven months in the year. This is not all. He will lose some, and all the colonies will dwindle in strength by next spring. It takes a lot of stores to build them up again. We are going to see if we can not cut down this idle time to one or two months, and make increase instead of a decrease.

We have changed our plan somewhat since our announcement in the last issue. Instead of building up the 300 to 300 *two-story* colonies for the production of extracted honey, and then splitting them up into 600 *one-story* colonies after the honey-flow, we are going to run them for increase, making the production of extracted honey secondary; that is to say, we shall extract just enough to give the queens room. We shall begin dividing in the midst of ti-ti; and when nectar from natural sources fails we shall keep up feeding.

Our apiarist, Mr. Ernest Marchant, was born and reared in that locality where he is going to take the bees. He was for years under the tutelage of his father, who is acknowledged to be one of the best bee-masters in the United States. A stranger could hardly go into that region and make a success of a venture of this kind. In fact, the same thing might be said of almost any locality with which a beeman is not familiar.

Mr. A. B. Marchant will operate further up the river; and after his honey crop has been secured, he will possibly be able to

furnish bees by the earload to Northern buyers. We bought two earloads of bees of him two years ago, and made a good thing of it, and there is no reason why others may not do the same.

OUR WATERWORKS APIARY; THOSE SWARMING
CARNIOLANS; THE ASPINWALL NON-
SWARMING HIVE.

THE front cover design for this issue shows our waterworks yard, located about 2½ miles northeast of the home apiary. In the background will be seen the Medina waterworks pumping station, and just in front of it one of our portable takedownable apiary sheds, one of which we use at each out-yard.

It was at this yard that we have been rearing Carniolans for the last two years, and where we had such incessant swarming in spite of all that we could do. The bees originally were run for individual comb-honey service, using shallow frames with foundation starters, top and bottom, as explained elsewhere in this issue. Of course this would have a tendency to incite swarming, and we were finally compelled to use drawn combs and extract.

In the middle of the back row will be seen a hive that is a little different from the rest. This is an Aspinwall non-swarming hive. Into this we put one of the strong Carniolan colonies that had been swarming so much. We naturally expected they would do it again, but they did not. No, they went right on storing comb honey, and did not swarm the rest of the season; and although the season was half over they filled some 70 odd sections with nice comb honey. Later in the season the slatted dividers became filled up with burr-combs. These we will show at another time.

It will be noticed that the two trees in the rear of the back row have the tops cut off. The reason for this will be better understood when we say that the Carniolan swarms had an exasperating fashion of going to the tops of those trees, some fifty or sixty feet high. Ye editor got so disgusted shinning up those trees that he finally secured permission to cut the tops off, with the result here shown.

The low shrubbery along the side of the road was also a favorite place for swarms. From there it was much easier to hive them; but in many cases they seemed to take a particular delight in settling on one of the posts of the wire fence where it was a slow and tedious operation to get them.

This is a good location because it is along the river; and during a period of drouth this yard will yield honey when the others may give only a scant supply. Down in

the flat, just back of the pumping-station, a good growth of sweet clover will be found, a picture of which we showed on the cover of our issue for Aug. 15th.

This yard, as will be seen, like all the rest of them, is located on one of our stone roads, so that at all times of the year or at any time of the day they can be easily reached by our motor truck, which will be seen in the background, just in front of one of the trees. This has been doing splendid service in reaching our yards during the past season. It not only carried men to and from the yards, but enabled us to have a central extracting plant at the home yard. It has brought home 20,000 lbs. of honey since the honey season was over, and it has been used almost daily to carry honey to Cleveland, where it is on sale at some of the principal groceries and drugstores.

GLEANINGS FOR 1914.

As announced on another page, we are planning another series of special numbers for 1914. The large number of post-card votes which we received from our readers indicated conclusively that the special-number feature is appreciated. The vote as it stands is practically unanimous.

We received many helpful suggestions for the future, which we hope may be the means of making the special numbers more valuable than ever. We wish that we might take up in one year all of the subjects that were suggested; but this would be impossible. We wish to take this occasion, however, to thank all of those who responded so promptly with their post-card votes, and who gave such practical suggestions. These ideas we shall bear in mind; and if it is the desire of our readers to have the plan continued for 1915 we will try to utilize more of the subjects mentioned at that time.

We believe our scheme for 1914 represents the wishes of the majority. Several of the numbers we should like to mention especially at this time. Much new material has developed along the line of the value of bees in orchards, and the fruit-men are awaking to the fact to such an extent that we believe the time will come very soon when beekeepers living in fruit districts need pay no rent for out-apiaries. It is our aim to have all of this new evidence, some of which is exceedingly valuable, brought together in one issue so that the beekeeper may have an opportunity of presenting the facts in concrete form to the fruit-grower.

There is always a call for material, especially for beginners. In our March 1st issue, "Beekeeping in Cities," we shall use considerable matter of interest especially to

beginners; for, although many beekeepers in cities are entirely out of the beginner class, there are enough others, just starting, to make the demand for elementary advice insistent.

In our April 1st issue we propose to get together the best material on "Breeding" that has ever been given to the public. It certainly is true that we know too little about selection of breeders and about breeding in general. There have been repeated calls for a special number on breeding, and at last we are able to arrange for such a number.

For our first number, January 1, we solicit interesting and practical articles from the poultry-raisers among our readers who have something worth while to make public. We are going to pay an extra price, as usual, for all material used in our special numbers, and this has reference as well, of course, to the material from our beekeepers who are also poultry-raisers. In this connection, however, we wish to say that all material intended for this Jan. 1st issue should be in our hands by Dec. 5. We shall be able to use some good clear pictures; but if possible we should like them by Dec. 1.

GLEANINGS is *your* bee-journal. It is your medium for expressing your ideas. While we have never yet known the time when we were short of copy, we are always anxious to get more and more of the very best material obtainable.

FILLING SECTIONS WITH DRAWN COMBS FOR
THE PRODUCTION OF COMB HONEY, AS
DESCRIBED BY J. E. HAND, PAGE 805.

On page 674, Oct. 1, Dr. G. A. Humpert, of St. Louis, describes his method of producing comb honey. It will be remembered that this was a scheme for producing comb honey in extracting-combs—that is to say, the combs were drawn out, filled with honey, and capped over, after which they were cut up in squares of a size that would just neatly fit inside of the sections. These squares, when inserted, were placed in the hive for the bees to fasten, after which they were ready for market.

Our ingenious friend and correspondent, Mr. J. E. Hand, of Birmingham, Ohio, has a plan somewhat similar, but differing in this respect: Squares of nearly drawn combs, before the bees have filled them, are put into sections. These are put into regular comb-honey supers, when the bees fasten them, fill them with honey, and cap them over. Mr. Hand describes this system in this issue on page 805.

He is entirely correct in saying that bees will accept and fill drawn combs when they will ignore foundation. He is correct also

in saying that, if we put drawn combs in sections in place of foundation the bees will enter them much more readily, and that we will secure a much larger percentage of No. 1 and fancy. But there is just one difficulty in the way, as we see it, and that is a serious one—to get a sufficient quantity of drawn comb to put into the sections in time for the honey-flow. To secure this it will be necessary to have a heavy flow, strong colonies, and probably shallow extracting-frames with thin super foundation; but thin super will stretch and buckle in frames as it will not in sections. Light brood foundation might overcome this; but then there would be danger of too much midrib.

For the last seven or eight years we have been experimenting with the proposition of getting the bees to draw out super foundation fastened in shallow frames, fill it with honey, and cap it over. Our problem has been nearly as great to get the bees to draw out thin super foundation in these shallow frames as to get them to accept the same foundation in sections. We have written Mr. Hand, stating that we thought there would be difficulty in getting the drawn combs; but he replied, saying that he has no fear on that score, because one good strong colony could furnish enough drawn comb to supply ten colonies having sections.

So far as we can ascertain, Mr. Hand has never tried this plan to any extent, or he might not be as enthusiastic about it. We have been trying something so similar, on a large scale, that we believe we have a right to an opinion on it. While it is easy to produce *extracted* in shallow frames containing drawn combs it is entirely another proposition to produce *comb* honey from foundation in shallow extracting-frames. We find that the bees are very slow about beginning this work in them. There must be a continuous and heavy honey-flow—precisely the same conditions we must have for the production of honey in sections. The bees will swarm nearly as much with one as they will in the other. We are becoming more and more convinced that the reason why bees hesitate to occupy a comb-honey super is not because it is cut up into little compartments or sections, as Mr. Hand implies, but because they do not like to stop and draw out foundation. If the sections are already filled with *drawn* combs, they will enter them just as readily as they do bait sections; but to get the drawn combs for *all* the sections—there's the rub.

Years ago, as Mr. Hand points out, we did produce artificial drawn comb by machinery. It was the work of the late E. B. Weed, and it was marvelously perfect. Bees accepted it as readily as they would

their own product; but every pound of drawn comb that we sold for a dollar cost us, we are convinced, anywhere from two to three dollars. The machinery was continually breaking down; and after we had spent several thousand dollars on the proposition we gave it up in disgust, more firmly convinced than ever that man would never be able to compete with bees in making comb.

There is another difficulty with Mr. Hand's system, and that is that the combs should be drawn the year they are put in the sections, not old combs of the year before. As Mr. Hand says, honey from unfinished sections is of inferior grade. Such sections serve the purpose of bait excellently, but further than that they are of but little use, and must be culled out and sold as seconds.

Mr. Hand has probably forgotten that Dr. Jesse Oren, years and years ago, tried out almost precisely the same scheme that he outlines in this issue. Why he abandoned it we do not know. About twenty years ago Mr. Barnett Taylor, of Minnesota, described a system very similar, with this difference: He saved out all the unfinished sections and extracted them. Then he had a little device that he called a "comb-leveler." This consisted of a hot plate slightly smaller than the inside of the section. An unfinished section was laid on top of this, and pushed down until the hot plate melted the comb to about half depth. The other side was treated in a like manner. Mr. Taylor found he could give his bees supers of these leveled-down combs in the sections, and the bees accepted them at once; but his plan was only a scheme to get rid of the unfinished sections. If we recollect correctly he soon abandoned it, as did all others. Dr. Jesse Oren and Mr. Taylor both sought to find some scheme whereby they could get the sections filled at top, bottom, and sides—hence the scheme of using drawn combs. But in later years Dr. Miller discovered a plan of using a bottom starter in connection with a nearly full sheet fastened to the top. This solved the problem of getting comb attachments to all four sides, and at the same time allowed the foundation to stretch downward as much as it would without buckling. This plan of two starters has proven so successful that it is now in almost universal use among comb-honey producers.

There is another difficulty with the drawn-comb proposition: When the bees start to draw them out they also start to fill them with nectar at the same time. They would have to be extracted, as the honey in them would not blend with the other after the bees got to storing in them again. Then the

liquid honey or nectar clinging to the sides of the cell would have to be licked up and cleaned by the bees. This would take considerable labor, both on the part of the bee-man and of the bees. When cleaned out they would have to be cut up and fitted into sections. This labor, if we are correct, would have to be performed in the midst of the honey-flow just at a time when the bee-man has no spare time at his disposal. On the other hand, when he uses foundation he can do all this work of filling the supers during the winter time or early spring when he is not busy.

As stated at the outset, we have been producing comb honey in extracting-frames for the last six or seven years; but this has been for the individual-service trade. It is not practicable to produce comb honey in sections $1\frac{1}{2}$ inches square; but there is a demand on the part of the fancy restaurant and Pullman-car trade which we have been supplying for pieces of comb honey $1\frac{1}{2}$ inches square. The only way to take care of this trade is to fill shallow extracting-frames with super foundation, using a bottom starter, and then get the bees to draw it out, fill it with honey, and cap it over. To do this requires nearly the same amount of skill that would be necessary in the production of honey in sections. Well, after we get the bees to draw it out and cap it over we are ready to cut it up into small squares, allow it to drain, and put it up in cartons. This we *know* is practical because we have been working it for seven years, and that very experience of seven years with this plan enables us to form some opinion of the plan described by our correspondent in this issue.

We do not wish to throw any cold water on the plan outlined by Mr. Hand. We should like to see it tried out; and if he or any one has been successful in any plan for the production of drawn combs from thin super foundation, so they can cut it up and insert it in sections, we shall be glad to have them tell us about it. There is no doubt that bees will occupy supers containing drawn combs far more readily than they will supers containing super foundation. And that is not all. The use of such drawn combs, as Mr. Hand says, either in sections or extracting-supers, will go a long way toward the control of swarming. We are convinced that one of the prime causes of swarming is *forcing* the bees to draw out comb foundation; and it does not make very much difference whether the foundation is in sections or in shallow extracting-frames. On this point our friend Mr. Hand may not agree with us. If wrong we shall be glad to be corrected.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

L. S. CRANSHAW made a plea for uniformity of terms, "colony," etc., *British Bee Journal*, 248. That warmed my heart. But before he got to the bottom of the column he was talking about managing 300 hives. O L. S.!

PARCEL POST has not been a success in sending honey, and there seems more or less of a feeling that it never will be. But across the water it has been in use successfully for years. Is there less enterprise here than in the old country?

No doubt you are right, Mr. Editor, p. 749, that wires will hold tender extracting-combs better than splints; and I doubt even whether running the splints into split top and bottom bars would make them better than wires. For all that, I think splints will give better combs.

RIGHT you are, Mr. Editor, when you say, p. 703, that unsealed honey sometimes may be ripe. It may be well to say that the converse is also true. Sealed honey sometimes may be unripe. I've taken off sections immediately upon being sealed that were the very finest and whitest in appearance, stored where other sections kept well, and they became dark and watery just because the bees had not ripened them sufficiently.

P. C. CHADWICK thinks the soil has no more influence on the color of nectar than the food he eats has upon the color of his blood. Are you dead certain, P. C., that your food has no effect on the color of your blood? Any way, I supposed it was the general belief that soil and elevation had an emphatic effect on qualities of nectar. Dr. Kramer says a change of soil makes a change of color in queens. A certain apple on the clay soil of my place is greenish, while two miles away on prairie soil it is red. If soil changes color in an apple, might it not also in nectar?

L. S. CRANSHAW says he has not found young queens laying as soon as ten days after the prime swarm, but usually expects a second swarm about that time—*British Bee Journal*, 248. I think Quinby's rule was that the prime swarm issues with the sealing of the first cell, and the second swarm about eight days after the prime swarm. But I've seen many a sealed cell where the bees had not yet swarmed. Per contra, I've known a prime swarm to issue with only eggs in queen-cells. But that was where the beekeeper had interfered by cutting out cells.

REV. G. H. CHATTERTON doesn't care for special numbers, because "It seems to confuse one when there are so many different views expressed," p. 702. There will be the same divergence of views, whether all in one number or scattered throughout the year, and I'd rather have them assembled in one number so they may be carefully compared as to locality, etc., instead of being more confused by indistinct remembrance of what has been in previous numbers. [Practically every one is asking to have special numbers for the ensuing year. We expect to have announcements out soon for a new list of subjects that we now believe will be attractive.—ED.]

MR. EDITOR, you have much to answer for, trying to stir up discontent in me. I've been quite content to stay north, summer and winter, and now that scheme of yours, p. 748, makes me feel I'd like to try North-and-South beekeeping. May be I'd better try it gradually, going a little way south this fall, say as far as Washington. [Say, doctor, what is the matter with your going a little further south than Washington? Just keep right on until you get to Jacksonville, Fla. A. I. Root will be glad to see you. Then shoot northwestward until you reach Apalachicola. You will see quite a wonderful bee country; but you should be prepared for mosquitoes. They are very fond of Yankees.—ED.]

MR. EDITOR, you must be trying to make me tear my hair and shriek with rage when you say, p. 705, "While you have been breeding toward non-swarmers, Mr. Burt has given his attention largely to honey-producers." Huh! just as if I cared nothing for honey-producers! Why, bless your heart, don't you know I've bent my whole energy toward breeding from best producers, even to the extent of breeding such vicious little demons as nearly drove every one off the place? Non-swarming came in only secondarily because favoring honey-production. And then to have you hint that I hadn't been giving "attention largely to honey-producers"! Just wait till you get my record for this year. [Beg your pardon, doctor; but if our occasional "breaks" on the even tenor of your way are the means of inducing you to bring out some new facts that you would not have done otherwise, our readers will be all the better pleased. Come on with your record. If it is a good one for a young man it must be all the better for one past his 82d year.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

A very little oil rubbed on the hands and knife when cleaning sections will prevent propolis from sticking, and save time and temper.

* * *

It is doubtful whether any thing so valuable has ever been written on the subject of the proper time to put on sections as the write-up by G. M. Doolittle, p. 521, Aug. 1.

* * *

On page 564, Aug. 15, in a paragraph on the pollination of alfalfa by the bees I read of the production of new varieties by the hybridization of colonies. It should read "clovers" instead of "colonies."

* * *

Editorial mention is made on page 558 of hive-tongs, and illustrations are given on pp. 573, 574, Aug. 15. But I have no use for tongs. I prefer to have hives with frames that are movable rather than to use an extra tool.

* * *

I am glad, Mr. Editor, that you could get out among the bees during the busy season this year. If there is any thing that gives a fellow new life and enthusiasm it is to "get out among the bees" when honey is coming in fast.

* * *

The caution given by A. H. Snowberger, page 579, Aug. 15, about hiving stray swarms on old combs is well worth remembering. There is certainly danger of foul brood if such swarms are hived on combs. Better give them three or four days in an empty hive.

* * *

That new method of introducing queens by smoke will be of great value if it proves as good when honey is scarce as it has when honey is abundant at Medina. A method that is simple and quick and which will succeed ninety-nine times in a hundred, at all seasons, is of great value.

* * *

On page 565 Mr. Chadwick tells how his bees have become accustomed to children. I am sure he is right, as I find bees are not nearly as "sassy" where they are brought up among folks. The most disagreeable bees I find in inspecting are those that have never been handled. Oh, my! but aren't some of them cross?

* * *

What is said in that paragraph by J. L. Byer, page 518, on the value of an abundance of old stores is not overdrawn. Every young beekeeper would do well to cut it out

and paste it on the door of his bee-house; and, better still, to practice it. I agree with Mr. Byer as to record-keeping. Very full records take too much time. I have found a board three or four feet long and five inches wide, with the numbers of the hives on it, ample to record all I wish.

* * *

I am glad to see Mr. Niver's name heading an article on page 576; and he makes a good point, too, on straining honey. I have tried several ways myself, but have not yet found any that was satisfactory but straining when hot through cotton cloth. The condition in which we often find extracted honey that we buy is not very satisfactory, with bits of wax, legs, and wings of bees, and sometimes larger portions of their anatomy.

* * *

On page 441 Mr. Chadwick refers to the fact in his experience of bees entering an eight-frame hive before they will a larger one. My experience has been the same; and it stands to reason that the same size of swarm will enter sections on an eight-frame hive before they will in a ten-frame hive; but there is another factor that comes in. A ten-frame hive is apt to have a larger store of honey, so that a colony in such a hive with abundant stores will breed up earlier; and, under such circumstances, it may even enter supers before colonies in smaller hives.

* * *

The editorial, page 516, mentions the cutting of sweet clover by the roadside. Yes, it is done almost everywhere. As one beekeeper said to me, "The farmers are fighting it;" and yet, as I have driven along the roads this summer, and have seen the stock trying to get their feed from the brown pastures parched with drouth, and then have noticed the rank growth of sweet clover beside the road, I have wondered how long it would be before the farmers would learn that a very much smaller area of sweet clover with its long deep tap-roots would furnish an abundance of feed for their stock during the long drouths we have almost every season.

* * *

UPPER ENTRANCE PROVIDED BY TIN TUBE.

On p. 599, Sept. 1, Dr. Miller says, "In America no one seems to think of a hive entrance anywhere except at the bottom, summer or winter." I believe, doctor, you are wrong, for I have used an upper entrance for many years on nearly all of my hives. I began using them so long ago that

I really can not tell how many years it has been, and I have found them so useful that I have put them in in nearly all my hives. I use double-walled hives almost exclusively, and I bore an inch hole through the outside case and packing and brood-chamber, and fit in a tin tube three or four inches long anywhere from four to six inches above the bottom-board. The bees seem to prefer it to the lower entrance, especially during early spring; but its chief value is in preventing the entrances from becoming clogged and dead bees from dropping to the bottom during long-continued cold weather in winter, for I winter out of doors.

* * *

SMALLER ENTRANCES AND AN ABSORBING CUSHION.

There has been considerable discussion in past years as to the best size of winter entrance for hives. Doubtless much will depend on circumstances, such as whether the bees are wintered in a warm or cold climate, out of doors, in a cellar, or damp or dry cellar; or if, out of doors, whether packed with an absorbing cushion above the winter cluster. I believe I have held the extreme view, that, where bees are wintered out of doors with a good absorbing cushion above them, a very small entrance is preferable. Last fall I closed a number of lower entrances, leaving only an entrance through a tin tube about $\frac{7}{8}$ inch in diameter. This tube going through the outside case, packing, and into the brood-chamber, I could not see in the spring that those colonies so treated had suffered in any way from lack of air or ventilation.

* * *

THINKING BEFORE ACTING.

Very entertaining reading, that story by J. L. Byer, page 531, about moving 250 colonies of bees 210 miles without a mishap! What interested me more than any thing else was the way he went at it, and it will bear repeating. He says, "The first thing to do was to formulate plans to carry out the work successfully. It is needless to say considerable study was spent on the matter for a few weeks prior to the trip." Exactly! and this accounts for his success. When I see how many people go into beekeeping and other lines of business without first planning their work I am not surprised at the failures which follow. One meets beekeepers with this or that style of hive or fixture, and inquires why they use it, and is informed it is because some one else does, or because some one has recommended it. They have never even asked themselves whether it is adapted to their wants or circumstances. Some beekeepers

use large hives where a smaller one would be better, or a small one where a large one would serve a better purpose, or frame hives where an old box hive or a nail-keg would do them quite as well. Some use Hoffman frames where propolis is so abundant that you need a crowbar to pry them apart, and a plain Langstroth frame, as he made them, would be vastly better. I hardly need add that the men and women who think and plan are the ones who will succeed in beekeeping. Those who find it too great an effort to think had better do something else.

* * *

RUNAWAY SWARM CARRIES FOUL BROOD.

Dr. Miller, page 633, Sept. 1, quotes D. W. H., "If a colony slightly affected with foul brood should cast a swarm, would the swarm, if placed on new frames and new hive, be liable to the disease if not exposed afterward?" Doctor M. says he doesn't know, and proceeds to do some fine guessing. May I throw a ray of light with my dark lantern? When visiting a beekeeper in the southern part of this State, who had about twenty colonies, I found among them two colonies with European foul brood and one with American foul brood. The colonies with European foul brood were easily accounted for, as some of his bees had had it before, and there was more or less in the neighborhood; but where could the colony with American foul brood have contracted the disease? It was a new colony, put into a new hive about three weeks previous, in the midst of a good flow of honey from buckwheat. At first I was puzzled as to the cause, and the owner also seemed exceedingly perplexed over the matter. If a new colony in a new hive should come down with disease in less than a month, what chance had he for keeping his bees free from disease? I began to ask, "Did you give this colony drawn combs?"

"No," he replied.

"Did you give this colony foundation in the frames?"

He said he put strips of foundation about three inches wide into each frame.

"Which old colony did this diseased colony come from?" I asked.

He did not know. He said he saw them first in the air, and had no idea where they came from. It seemed evident to me that the colony placed in this hive was a runaway swarm, and had come a long distance—it may be five miles or even more, and, passing near his yard of bees, and hearing them, had clustered. The foundation was quickly drawn out, and more or less of the honey brought with them had been stored and fed to young brood, causing disease.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

I have made an inspection of the eleven colonies of which I spoke in my last notes, in which I introduced Italian queens by the Miller plan. Out of the eleven I saved four, and the wings of two of them look as if they had been pretty well chewed up and the queens not overly active. No more experimenting for me for a while with new plans of introduction, at least until I am more able to afford the expense. Almost every one with whom I talk seems to think that this has been the worst season for years to introduce queens successfully. Even with the most careful painstaking, heavy loss has been sustained.

WHAT IS THE EFFECT OF FOREST FIRES?

This has been the most disastrous season for forest fires for years. Vast areas of choice ranges have been devastated in nearly all of the southern counties. Mr. M. H. Mendleson tells me that his famous Piru range was swept on one side of the canyon, burning up so close to his apiary that one colony of bees was destroyed. A clean yard is all that saved his hives from going up in the smoke. There is considerable speculation as to what extent a range is damaged by being burned off. One beekeeper told me a few years ago that he thought it improved a range to burn it off. I have been watching the results of burning over the ranges for several years, and I am thoroughly convinced that a range is not only injured but in many cases almost destroyed. Burning over a white-sage range does not injure it permanently, for new shoots spring up from the roots the following year, leaving it in almost as good a honey-producing condition as before. With the black sage it is different, for my observations have shown me that very little of it ever comes up from the roots, but must depend on reseeded. Mr. Mendleson tells me that in his locality it sprouts up from the roots, but that has not been the case in this part of the State. Seven years ago a vast acreage was burned over to the east of Moreno Road; and on the south side of San Mateo Canyon the fire was, I believe, in August, and made almost a complete sweep of the territory burned over. The winter following was a wet one, and the area was reseeded with black sage, which has grown to such an extent that it is now nearly the equal of its former days. Another area just to the south and west of my apiary was burned over a few years later. The winter following was a rather dry one, and the reseeded was

not nearly so complete. The range in that direction is permanently injured. This season is a very bad one for fires, for the seeding of the sages was very light in many places; and even if the winter should be a wet one there will not be an abundance of seed to reseed the territory properly.

WHAT IS A BETTER INVESTMENT THAN BEES?

It is no wonder that many of our beekeepers are discouraged, almost to the point of throwing up their hands in despair and quitting the bee business entirely. Two dry seasons in succession, and fires and black brood to contend with, make a combination hard to face. Are we fair to the little bee? I am afraid not. So long as the rains are abundant, the honey-flow regular, and the bees are healthy, we are great beekeepers, and prosperous fellows with plenty of courage and good cheer. But let a couple of dry seasons come along, the honey-flow slacken, and black brood make inroads in the vicinity, then down goes the mouth of almost every beekeeper. He complains of having to feed a few sacks of sugar to keep alive the same bees that have been helping to feed and clothe him. Now, Mr. Beekeeper, let us consider a few points. Suppose you sell your bees at a fair price, and quit the business. Where can you invest your money to better advantage? Where in California is there an industry that will return you as many dollars on the investment for ten years as beekeeping? It is not in the orange industry, the walnut industry, nor even the bean-growing industry. If you have, say, 500 colonies of bees, and sell them for \$7.00 per colony, you will have \$3500. How much bean land can you purchase for that sum? How many acres of oranges or walnuts? Wake up and figure a while. Things look blue ahead, to be sure, but no more so than in times gone by. Let's cheer up, face the music, get in, and feed the bees. Some of these days we shall have another period of wet winters, and all of this trouble will be forgotten when the extractor hums once more. Who knows but that it will be this winter? The present scourge of black brood will pass, and the fellow who stays on the job is the one who will win the reward, as sure as can be. The area of sage is narrowing down every year, and it will be but a few years until sage honey will sell at a premium. In fact, the day is now at hand when the beekeeper is going to exact the highest price for the best sage honey produced, in any quantities.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

HEATING EXTRACTED HONEY.

The writer has had occasion during the last few weeks to reliquefy about 10,000 lbs. of honey, granulated more or less, and to make some observations in this connection. One of the greatest objections to heating extracted honey is the effect this has upon the color of the honey. Each successive heating will darken it a little more, if not carefully done; and if the honey is heated slightly too much the flavor will change also. It was found that slow heating of the honey, especially if it was in sixty-pound cans, and granulated solid, did not affect the color and the flavor as did rapid heating. In the former the honey was melted gradually and with very little fire. Rapid heating takes less time, but the results are less favorable.

A large vat was used, holding six sixty-pound square cans at a time. This vat is deep enough so that the cans can be completely submerged in the water. They rest on a framework of wood, so they are about two inches from the bottom of the vat, and the vat is about four inches deeper than the top of the cans as they stand in it. In order to supply heat to the top of the cans, which can not be done very well by the hot water, a cover is placed over the vat, and this holds in the hot steam. Thus the cans are all well surrounded by heat, and the liquidation is more even and is quicker.

At intervals the cover is removed and the honey in the cans stirred up if possible. Of course it is difficult to do this at first; however, we use a strong steel rod, about $\frac{3}{8}$ inch in thickness, and run this through the

mass of granulated honey at various places, so as to break up the compactness of the contents of each can. Doing this several times will enable some of the liquid honey to permeate through the cavities made, and hasten the melting of the honey. After that, the entire mass can be easily stirred, and the rest of the granulated masses of honey broken up, so that the liquefying takes less time, and none of the honey gets so hot as to spoil the color and flavor.

If a set of cans is started off in cold or only moderately warm water, and then heated carefully so that the water does not boil, there is little danger of spoiling the honey. On the other hand, with too much fire and the water boiling, there is a tendency in the honey next to the tin containers to become too hot before the granulated mass is entirely dissolved. This will occur in spite of stirring or breaking up the granulated masses as mentioned above, and care should be taken not to subject the honey to such high temperature. It is true that one can "work up" a large number of cans of granulated honey in a certain length of time; but there is no saving of fuel, and there is the risk of spoiling both color and flavor of the honey.

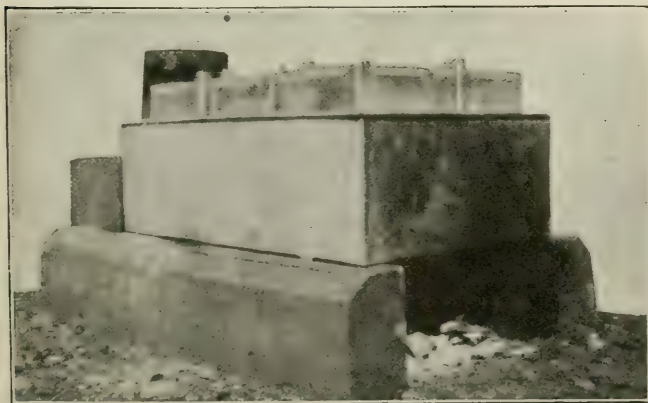
The vat method is mentioned here for the reason that most beekeepers must resort to that way of reliquefying their granulated honey. Usually the family wash-boiler is brought into play, and one can at a time is heated. This requires a lot of fuel unless the boiler is set into a furnace, and it takes quite a lot of time to heat any number of cans of honey. Another trouble is that these

boilers are not deep enough and do not permit subjecting the entire can to the heat. As a result the honey in the lower part of the can usually gets too hot while that on top is still in the granulated stage unless it is worked up continually.

A better method, and one which will pay any beekeeper, is to have a vat constructed of galvanized iron, to hold either two, four, or six cans, whichever is the most suitable for his use.

A furnace may easily be

Continued on page 820.



Scholl's honey-liquefying vat, holding six cans of honey. The new vat is deeper and has a cover over all to keep the heat around and over the cans.

Conversations with Doolittle

At Borodino, New York.

DOES LOCALITY MAKE THE DIFFERENCE?

"In GLEANINGS for October 1 the writer of Notes from Canada does not seem to agree with you regarding the rearing of bees with reference to the honey harvest. He apparently bases his ideas on 'our locality,' as he expresses it. But I, for one, have great faith in friend Byer, and wish that you would give some further information on the subject."

There certainly must be a difference in localities, for I note on p. 670, Oct. 1, that Mr. Byer says that it makes him hustle to get off his basswood honey before buckwheat comes on. In this locality, buckwheat is usually sown from the 4th to the 10th of July, and basswood usually begins to bloom from the 5th to the 10th of July. Except in long-drawn-out seasons, the flow from basswood lasts from ten days to two weeks.

In this locality Carniolans, Syrians, blacks, and most hybrid bees begin to breed to excess as soon as the harvest of white honey opens. Up to that time they do not have much more than half the brood that a ten-frame hive will accommodate. A good strain of Italian bees will have at the same time nearly, if not quite, the maximum amount of brood for the season. As the season advances they will still hold about the amount they had up to the middle of the harvest of white honey, when the queen will cease laying any longer at the outside of her circle of brood, confining herself to the cells vacated nearer the center. In this way we have little honey stored in the brood-combs till the last half of the nectar yield, and not then only as the brood has matured from the outside cells. The other races of bees keep on increasing their brood until the sides and ends of the hive are reached.

Many would have us believe that the sum and substance of beekeeping depends on keeping all queens employed at egg-laying to their fullest capacity. Queens, in any well-regulated apiary, are among the smallest part of the expense incurred. Labor, hives, and combs go toward making up the larger part of the expense. Bees, when they come on the stage of action at just the right time, are *very valuable*; but eggs are of no value only as they tend in the direction of producing these *valuable* bees required in the field at the time of the honey harvest. Eggs cost practically nothing; but as soon as the bees begin to perfect them toward other bees, then they begin to cost; and if this perfecting is going on to any great extent at a time when the perfected product

is placed on the stage of action, either before or after their presence in large numbers is needed, we not only have the cost of their rearing to pay for but the cost of the stores they consume afterward as well. A beekeeper willingly stands this expense at any time when the production of the individual bee is greater than its consumption. But I can see no object in doing this at any other time, simply that colonies may be "*always strong*," or that the *extra laying capacity* of any queen may be gratified.

Let me illustrate: Twice I tried the Syrian bees, and three times the Carniolans. In each case the bees would have brood to the amount of about three or four full Langstroth combs at the commencement of the white-honey flow, while the Italians had seven or eight frames full. By the middle of the flow the former would have brood in every one of the ten frames to the amount of about nine full combs, while the Italians would have the same amount as when the flow began. When the flow of white honey ceased, the Italians would have from 70 to 100 sections filled, and brood to the amount of five or six frames, or sufficient in both bees and honey for winter, if the fall flow-ers should fail. The others would begin to swarm near the close of the white harvest, and keep it up till ten days after the flow had ceased. Twenty poorly filled sections were the best I ever got from any of the five different lots tried; and, with one exception, all had to be given combs of sealed honey from the Italians to carry them through the winter. It took nine-tenths of all the honey these bees gathered to perfect these bees reared out of season.

If I had used duramies, as given in the article Mr. Byer objects to, confining those Syrian and Carniolan colonies to just what brood they did have, when the flow from clover and basswood began, they would have given the amount of honey consumed (by that extra worse-than-useless brood reared) in the sections, and I would have had something to show for my labor, but nothing like that given by the Italians.

Now, as I have said many times before, let each know his locality and govern himself accordingly. If colonies "always strong" do best in a certain locality, that is what one should work for; but from my multitudinous correspondence through the last forty years I know that the rearing of bees with an eye to the harvest "draws the prize" in more localities than in Central New York.

General Correspondence

A NOVEL WAY TO PACK COMB HONEY FOR MARKET

Producing and Shipping Comb Honey in Shallow Frames

BY J. J. WILDER

There are many advantages in producing comb honey in frames rather than one-pound sections. Much more can be produced per colony with less manipulation, and at the same time it can be sent to market as safely, and net the producer as much per pound as comb honey in sections.

The illustration shows the package and manner of packing which I have adopted. I have found it perfectly satisfactory and very economical.

The box is made of very strong pasteboard, with soft partitions to separate the frames of honey. These are set in the case loosely as the frames of honey are put in, and are about $\frac{1}{4}$ inch higher than the frames, so as to keep all weight off the frames.

The box consists of only one piece of pasteboard, and, when set up, makes a complete box with bottom and top. There is a strong soft pad which is placed on the bottom, upon which the frames rest. There is also a pad placed on top of the frames. Then the top of the box is folded down and well wrapped with binder's twine. The boxes are made to hold eight frames. These, with the partitions, completely fill the box and pre-

vent the frames from shaking about, either from the sides or ends. The twine, drawn tightly around them from both ways, braces the boxes and makes them very strong. They will stand much rough handling. The frames should be well filled and of nearly even surface in order to pack to good advantage. The top-bars are cut off even with the end-bars so as to give a good bearing at the end of the cases, and the end-bars will keep the honey properly spaced, and there is but little chance for the surface of the honey to become crushed or broken. Of course the frames should be well cleaned up. It is a very easy matter to get the net or gross weight of each package.

Honey thus packed is readily sold on any market, and will reach the consumer in good condition. Dealers who buy up and repack honey for the trade find it the very best.

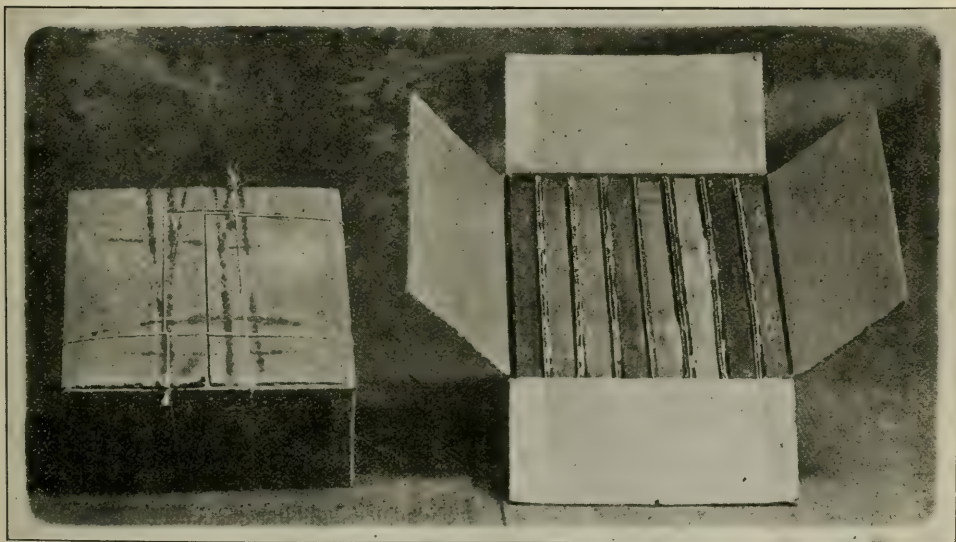
Cordele, Ga.

PUTTING FULL SHEETS OF FOUNDATION IN BROOD OR EXTRACTING-FRAMES

How to Use the Groove-and-wedge Plan for Securing the Foundation to the Top-bar; Preventing Sagging and Buckling

BY H. H. ROOT

There have been innumerable plans suggested for wiring frames. Elaborate forms have been illustrated in these columns for clamping the frames, holding the spool of wire, etc. We have tried many of these, but



Comb honey marketed in the shallow frames in which it is produced. On account of the danger of breakage of the large combs, the frames are separated by soft pads, and all packed in a corrugated-paper shipping-case.

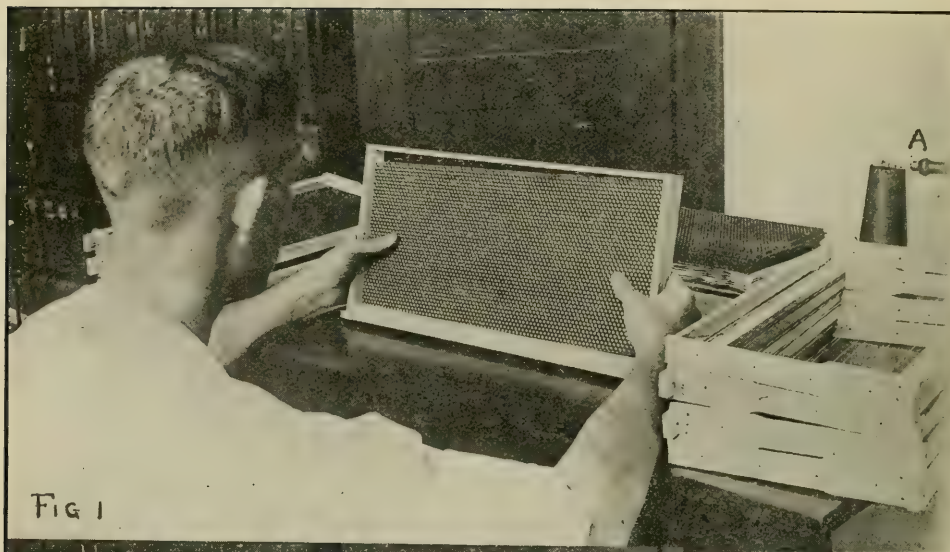


FIG 1

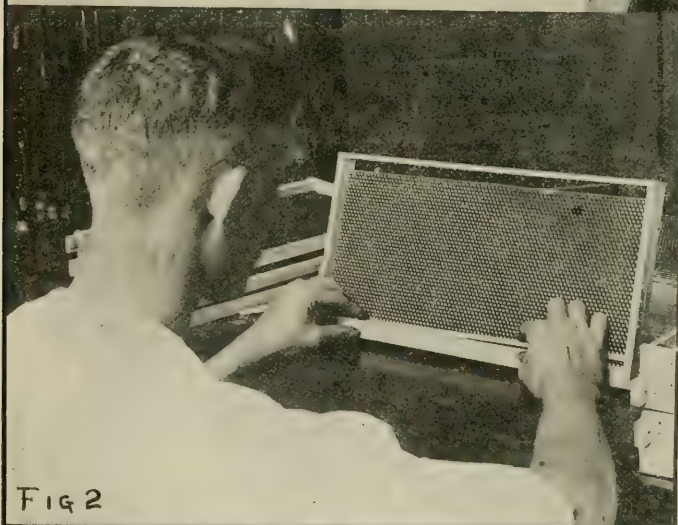


FIG 2

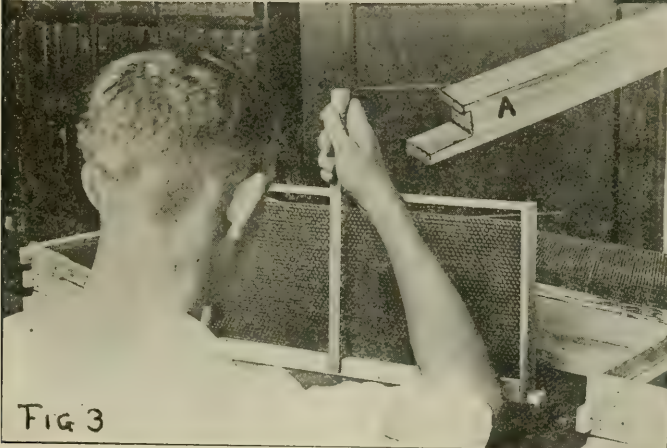
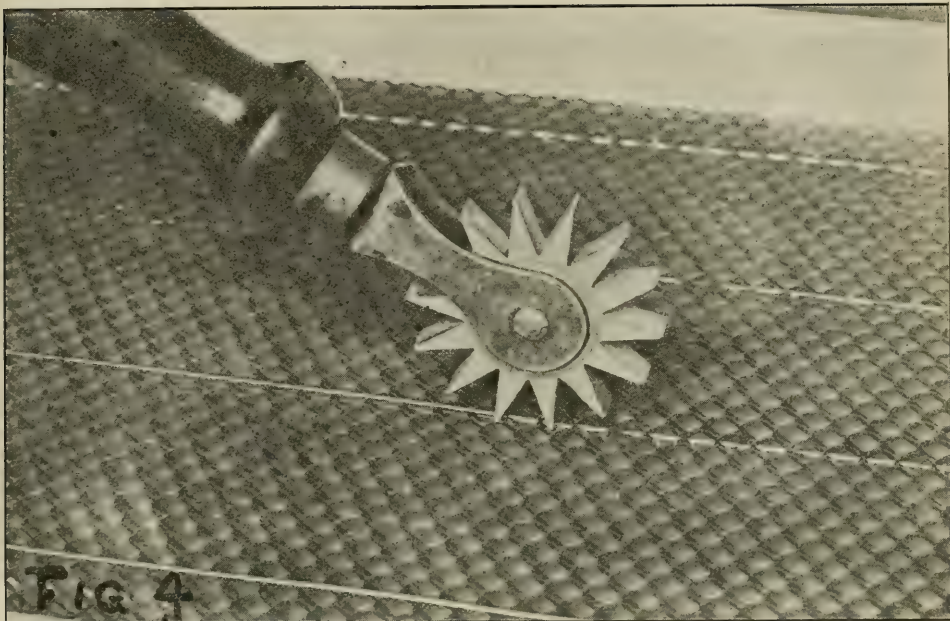


FIG 3

FIG. 1.—Dropping the sheet of foundation into the groove. The imbedding-tool, also shown, being heated over the lamp. FIG. 2.—Inserting the wedge. FIG. 3.—Sinking the wedge into the groove. End of stick used is shown at A.

we prefer our two hands, a pair of pliers, and a board the right length to wind the wire on. However, this is another story. There have also been all sorts of plans suggested for wiring — horizontal, vertical, crosswise, combinations of one, two, or all three, etc. But I propose in this article to give a simple plan of putting full sheets of foundation in frames having four horizontal wires in such a way that the resulting combs are as straight and free from sagging as it is possible to expect.

The plan suggested by Mr. A. B. Anthony, of Sterling, Ill., reported editorially in our August



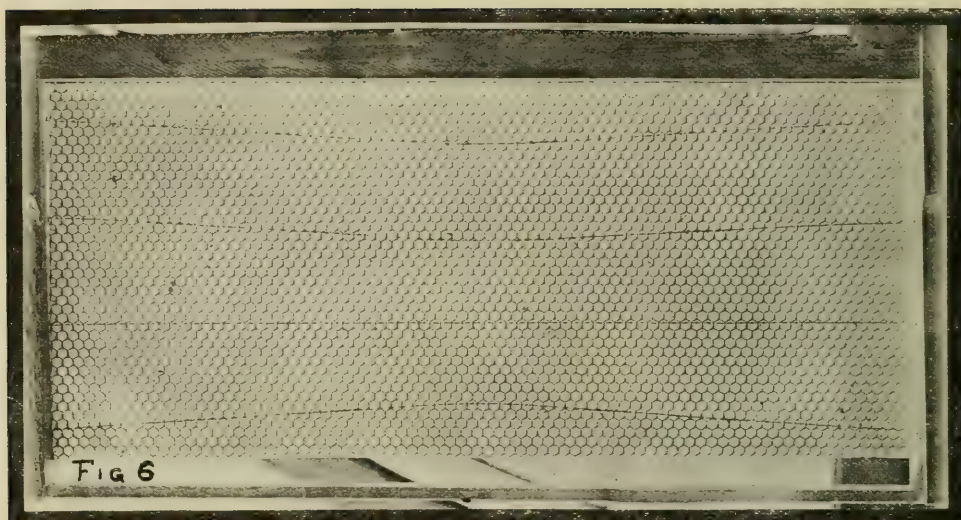
The hot teeth melt a small portion of the wax, firmly "cementing" the wire in place in the center of the foundation.

15th issue, last year, is one that has a great deal of merit, for it certainly results in beautiful combs. It is not an easy matter to imbed wires out of line, however, and very likely this is the reason why more beekeepers have not followed the plan. I hope that the description and the photographs reproduced herewith may help many to secure perfect combs—combs which do not have a lot of drone-cells near the top-bar, and which are not bulged out of shape. The ideal way to imbed wires in foundation is by means of electricity; but owing to the difficulty in obtaining the right kind of current, this plan is out of the question for

the great majority. The regular tools ordinarily used for imbedding the wire simply push the wires into the wax, but do not firmly secure it where it belongs, and on this account the foundation is likely to swing away from the wire, so that the combs when built are crooked, or else the wires are to one side of the midrib. Using a hot imbedding-tool overcomes this difficulty, for a very little wax is melted at each point where the tooth strikes the wire, so that the wire is firmly cemented in place. Thus it is not necessary to run a stream of wax over the wires afterward, for they will not pull out unless the foundation is torn to pieces.



Shape of tool used. The broad blunt teeth do not cut the foundation, thereby weakening it, even if the tool is used cold. If used hot each tooth melts a small amount of wax, firmly "cementing" the wire in place.



Looking through a finished frame, showing how the wires are deflected out of line.

DIKECTIONS FOR PUTTING FULL SHEETS OF
COMB FOUNDATION IN WIRED FRAMES,
AND IMBEDDING THE WIRE IN THE
WAX.

In order to do rapid work in putting foundation in frames, select a bench or table large enough to hold the empty frames, the pile of foundation, imbedding-tool, etc. Prepare the following equipment: A common kerosene or coal-oil lamp (one having a metal chimney preferred), a small box the same height as the lamp, and a board about one inch thick, of such a size that, when laid flat on the bench, the frame will just slip over it, in which position it will be supported only by the wires resting on the inch board. Light the lamp, being careful not to have the wick turned very high. Place it on the bench and move the box above referred to close to it. Put the imbedding-tool over the lamp, resting the metal part on the edge of the chimney so the spur wheel will come directly over the heat. Support the handle by means of the box. Fig. 1A.

Select a wired frame; turn it upside down on the bench so that it rests on the top-bar. There are two grooves in the top-bar, the one nearest the center for the foundation, and the other one for the wedge. The frame should be standing on the bench with the groove for the wedge toward you. Pick up a sheet of foundation from the pile, being careful not to wrinkle the edge, and place it in position in the frame, holding it with the two hands, as shown in Fig. 1, the fingers reaching around the end-bar on to the other side of the foundation. Start one corner into the center groove, and then, by

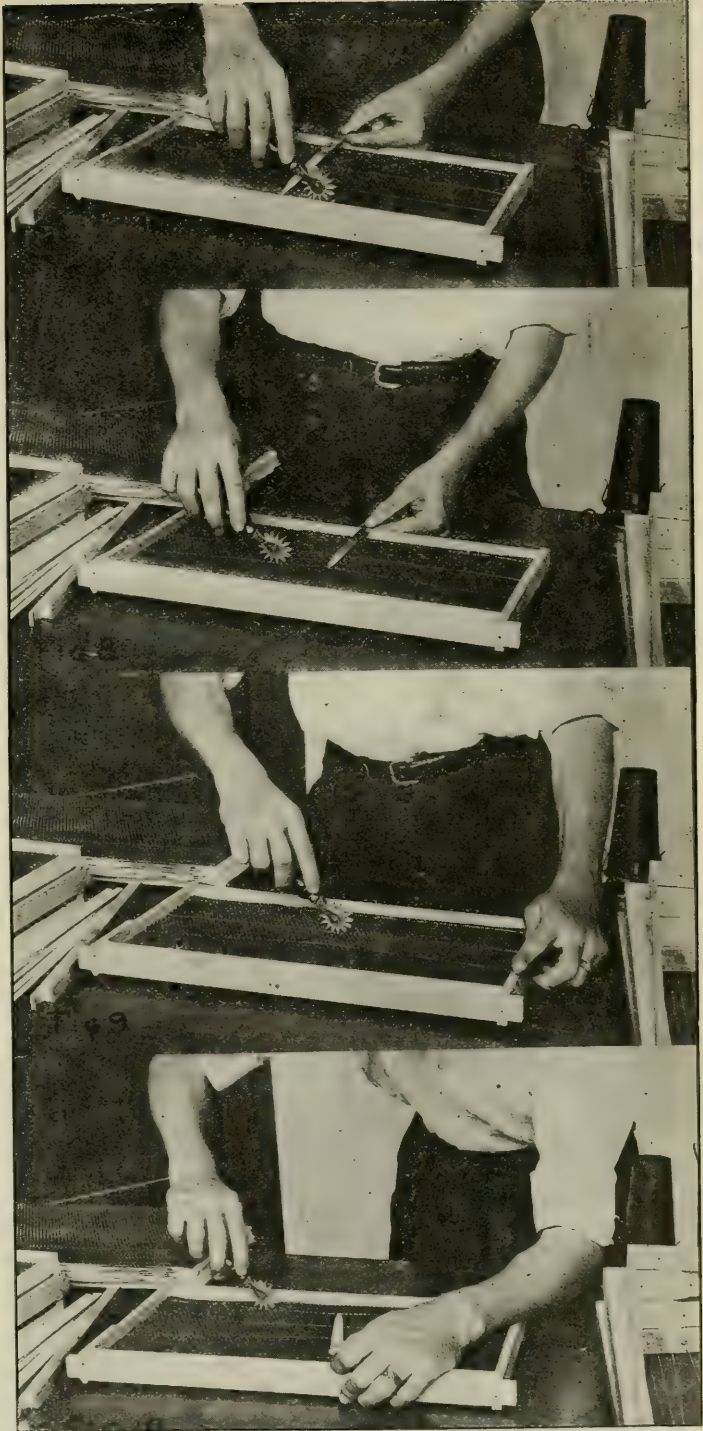
pulling slightly with the other hand to straighten out the sheet, and at the same time giving the frame a slight jar on the bench, the foundation will settle down into the groove. Make sure that it is down as far as it will go, so that the vertical edges are parallel with the end-bars of the frames. Start one end of a wedge in the groove, taking pains to have the beveled side next the groove containing the foundation. After the wedge is started in the groove at the left end, draw your right hand along, thus pressing it down as much as possible. Then take a stick three-quarters of an inch square, the end of which is notched as shown in Fig. 3A, and, starting at the left end of the wedge, push it down below the top of the groove. Move the stick rapidly along the groove toward the right, pushing down about every two inches so that the wedge is pushed clear down below the top of the groove all along. If this is not done, the wedge is likely to drop out later on when the wood shrinks, thus allowing the foundation to fall out when the bees get on it. The notched stick referred to should be cut with a saw from hard wood, and the shorter projection should not be over an eighth of an inch long, so that, when the stick is pushed down, the wedge will be pushed in a sixteenth of an inch below the top of the groove.

Lay the frame, in which the foundation is fastened, over the inch board, letting the foundation be next to the board and the wires on top. Push down on each end-bar to make sure that the foundation lies flat on the board. If you are right-handed, stand

at the right end of the frame; take the hot imbedding-tool in your right hand, and, beginning at the left-hand end of the frame, which is the end furthest from you, draw the notched wheel along the wire toward you, going from one wire to another until all are imbedded. Press on the handle of the tool just enough to imbed the wire about half through the foundation. The hot teeth melt the wax at each point they strike, thus holding the wire in place. Fig. 4. Do not draw the tool too rapidly nor too slowly. After trying two or three frames you will easily catch on to the knack, so that you can do rapid work. The tool should not be so hot that it melts too much wax, nor so cool that it does not melt the wax at all. When you first begin, the wheel may stick slightly so that the teeth have a tendency to slide along the wire; but as soon as the melted wax covers the bearing, so that it is thoroughly lubricated, the wheel will work freely.

TO PREVENT SAGGING AND BUCKLING.

To overcome the tendency of the foundation to sag and buckle out of shape after it is put in the hive, imbed the first wire—that is, the one nearest the top-bar, with what sag there is below the horizontal. The next wire should curve down also, although not as much as the first one.



Imbedding the wires with a hot spur wire-imbedder. The upper wire is pulled down out of line toward the bottom-bar. The next wire is also pulled down, though not so much. The third wire is left straight. The lower wire is pulled up toward the top-bar.



On July 23 was held a bee picnic at Gayville, S. D. It was well attended, and some of the vital questions pertaining to apiculture were discussed, such as "Bee Diseases," by L. A. Syverud, of Canton, bee inspector for the eastern part of South Dakota; "Relation of Bees to Plant Life," by R. A. Morgan; "The Production of Comb Honey," by J. J. Duffack, of Yankton; "Preparing Honey for Market," by W. P. Southworth, of Sioux City, Iowa.

The third wire should be about straight. The fourth, or lower wire, should have all the slack taken up by a decided curve toward the top-bar. Fig. 6. The upper wires prevent stretching of the upper part of the foundation, thus reducing the tendency on the part of the bees to build drone-cells near the top-bars; and what little sag there is will not cause the lower half of the foundation to buckle, since the lower wires can move down with it to some extent.

The wires can be more rapidly imbedded if they are left straight; but with a little practice it does not take much longer to imbed them when they are curved, as above mentioned. To facilitate the work, cut a piece of tin three-quarters of an inch wide and about eight inches long. With a pair of shears taper one end down to about an eighth of an inch in width. With a pair of pliers make a sharp right-angle bend one-sixteenth of an inch from the end of the tin, thus making a very small hook. Holding this tin hook in the left hand (Fig. 7), pull the upper wire down toward the bottom-bar, letting the tin lie flat on the wax. The imbedding-tool will pass over it without the least difficulty. Hold the tin for an instant after the wire is bedded until the wax sets, then go to the next wire as in Fig. 8; but it is not necessary to pull this one down quite as far. The third wire (Fig. 9) may

be imbedded just as it lies in a straight line. The fourth wire, that is, the lower one, should be pulled up toward the top-bar, as in Fig. 10. In case the foundation is not given to the bees at once, the wires should not be drawn out of line quite as far, owing to the fact that the two upper wires might then draw it up too much, thus causing a wrinkle.

The imbedding-tool will remain hot for all four wires. It should then be placed over the lamp to keep up the right amount of heat for the next frame. If too much wax accumulates on the imbedding-tool shake off the surplus occasionally on to a piece of paper. The surplus wax, however, does no real harm unless it accumulates to such an extent as to drop down the lamp chimney and cause it to smoke.

SMOKE METHOD IN DIRECT INTRODUCING FURTHER INDORSED

BY J. E. MARCHANT

Nov. 1, p. 768, Mr. J. C. Mosgrove says he is not in favor of using smoke when running in queens. Mr. Mosgrove, did you ever give it a trial? Don't condemn this method until you have given it a fair test. Your reason is, if it is at a time when there is a dearth of honey the colony will be demor-

alized to such an extent that it falls an easy victim to robbers, or the smoke may cause the bees to fall upon the queen and kill her. It isn't necessary to get robbing started by performing such a simple operation as smoking in a queen. *We want the bees demoralized.* That is why we use smoke; that is where the success of introducing comes in.

If you have certain favorable conditions to introduce queens by the method you have been using, you get good results. By the smoke method, I get perfect results under almost any conditions. Even laying workers will accept a queen. You can run a queen into a colony that already has a queen by smoke, and the bees will kill the old queen, and accept the newly smoked-in queen.

Only yesterday, Oct. 27, one of my friends, a beekeeper, said, "Marchant, that smoke plan of introducing is the greatest plan on earth to introduce a queen. You remember that old virgin you gave me? Well, I smoked her into a colony that had laying workers which had refused to accept a laying queen that was given them with lots of her young bees. They accepted the virgin all right. I saw her an hour after smoking her in, and also two weeks after. But, unfortunately, the weather was so bad she could not get out to mate; so I killed her and smoked in a laying queen, which is doing well."

I conscientiously recommend the smoke method to beginners and amateurs. By introducing by this method, which I use entirely, one will succeed 95 times in 100 under almost any conditions.

Medina, Ohio.

NEW PRINCIPLES IN SECTION-HONEY PRODUCTION

BY J. E. HAND

Section-honey producers have long recognized the fact that bees have a decided antipathy against beginning work in sections, even when full sheets of foundation are given. This trait is so strong in some colonies that they will sulk and loaf, and actually refuse to enter sections, until compelled to do so by force of numbers. This is not to be wondered at when we consider that the space in section supers is chopped up into ridiculously small divisions, and interspersed with and intersected with pieces of wood in the form of separators, and the vertical sides of sections.

This abnormal condition breaks up the cluster, interferes with their method of ventilation, and breeds discontent among the bees, which is quite likely to result in ex-

sive swarming since it is during this period of enforced idleness that the swarming fever is usually contracted. When once contracted, the fever will usually run its allotted course. While we may, by curtailing their efforts and frustrating their plans, discourage swarming, the chances are even that we have likewise discouraged honey production, lost control of our bees psychologically, and, therefore, made serious inroads upon our crop. For a condition of discontent among bees is not conducive to best results in honey production.

A NECESSARY EVIL AND A SUGGESTED REMEDY.

Since the abnormal conditions just described are imperative, and can not well be dispensed with in the successful production of section honey, a powerful influence must be exercised over the bees in order to overcome their antipathy against existing conditions within the storing-chamber, as well as an incentive so powerful as to induce them to enter the sections readily and eagerly.

It is well known that empty combs are a great incentive to induce bees to begin work in supers; hence they will enter extracting-supers more readily, and swarm less than with section supers when full sheets of foundation are given. Many have profited by this eccentricity by using bait sections filled with partly drawn combs carried over from the previous season, while others use an empty extracting-comb on each side. The objections to this plan, as we see it, are, first, the harvesting of two different products in the same super introduces undesirable complications, and occupies room that should be devoted to comb-honey production, especially since select colonies are usually chosen for this purpose. Second, it does not overcome the antipathy of bees against drawing out foundation. Concerning bait sections, while they evidently have some influence in inducing bees to enter sections, the incentive is not strong enough to outweigh their antipathies; hence it occasionally happens that the bait sections are the only ones in the super that are finished. In this case the others present a forlorn and dilapidated appearance as the result of an attempt on the part of the bees to remove the foundation as so much waste matter. This fact, coupled with the knowledge that fancy and No. 1 honey are seldom found in bait sections, is sufficient to prohibit their use. After testing each of these methods in turn, we discarded them both as being inefficient, ineffective, and totally inadequate to our needs.

ON THE RIGHT TRACK.

Being thus thrown upon our own resources we began to cast about to discover some method that would enable us to over-



Apiary of T. Stapleton, Gwinear, Hayle, England. he uses strictly up-to-date hives and fixtures.

Mr. Stapleton also has an outyard. In both apiaries

come these seemingly insurmountable obstacles. At this stage, however, the bee journals were discussing, pro and con, the advantages of using full sheets of partly drawn comb in all the sections. Though convinced of the soundness of the theory, we were no nearer the coveted goal, for want of a practical method of securing these combs and fitting them into sections. At this time, however, the Root Co. being, as usual, awake to the needs of the hour, were experimenting with machinery for the manufacture of partly drawn combs, of a size to fill completely a $4\frac{1}{4}$ section.

THE PROOF OF THE PUDDING.

After securing a sample, and finding it entirely satisfactory, we immediately ordered enough to fill 2000 sections; and having lost no time in putting them on the hives we anxiously awaited results. We did not have long to wait, however, for the bees immediately took possession, and the eagerness with which they began work in those sections was indeed a revelation to us. These sections were filled rapidly, and were the finest we had ever before seen; furthermore, swarming was reduced 50 per cent, with a marked increase in the average production per colony. The proof of the pudding convinced us of the value of drawn combs in sections, and we would gladly have paid \$1.00 per lb. for it the following season; but, unfortunately, its manufacture on a

large scale was not a success, and it was not to be had at any price.

BEATING ROUND THE BUSH.

Again thrown backward upon our own resources, we scarcely knew which way to turn; but realizing the advantages of having combs firmly attached to the wood on all sides of sections, we were induced to give Dr. Miller's two-piece method of filling sections with foundation a trial. After using full sheets of drawn comb with such surprising results, however, it was a long step backward to cut up foundation into small pieces, and handle and rehandle the sections, one at a time, over a hot plate, not mentioning those that drop down from the weight of bees because the plate is either too hot or too cold. And, finally, we discarded this method also, as being altogether too primitive and antiquated to meet the exigencies of progressive methods. Necessity is the mother of invention, and again we began to cast about to devise some up-to-date method for the perfect filling of sections with foundation. This movement resulted in the development of the split-section idea, by means of which we were enabled to place a continuous sheet of foundation in the center of four sections at one operation without removing them from the frame, and the sections were so perfectly filled that no crack was visible. This was a decided improvement over former methods,

and resulted in a high percentage of fancy honey in the finished product.

PSYCHIC CONDITIONS AN IMPORTANT FACTOR.

Notwithstanding this, however, we were painfully reminded of the antipathy of the bees against existing conditions within the supers; for swarming became the rule instead of the exception, to the extent that we were compelled to devise a special equipment for the control of it. This led to the development of the switch method of controlling bees by mechanical means, which settled the swarming question in short order. It soon became apparent, however, that we were not getting the best work out of our bees that they were capable of performing; for while we had almost perfect control of swarming it was a matter of forcing them into the sections by sheer force of numbers, regardless of their inclination.

Since bee nature still revolted against the abnormal conditions that still existed within the storing-chamber, there was considerable loafing; and it became evident that the forcing process was not conducive to best results in honey production; therefore if we would maintain the psychological condition of contentment and satisfaction that is essential to best results in honey production, we must furnish an incentive so powerful as to overcome all their idiosyncrasies, and induce them to enter sections willingly and eagerly.

NEARING THE GOAL.

Fully realizing that, next to combs of brood, freshly drawn combs are the most powerful incentive imaginable to induce bees to enter supers, we soon developed our split-section idea into a method that enabled us to take a strip of drawn comb from the hive, and, while still warm, place it exactly in the center of four sections, without loosening it from the frame or touching it with the fingers, or using any tools of any kind. To say that we were enthusiastic about the development of the principle is putting it mildly; for we felt like throwing up our hat and shouting "Eureka!"

COMING DOWN A PEG.

But, alas for human endeavor! "the best-laid plans of mice and men gang aft aglee," and we were not the exception to the rule, for unforeseen and unexpected complications arose, and apparently insurmountable obstacles blocked our pathway to success along the line of split sections; and it became painfully evident that we had chosen the wrong method of applying the principle. Our disappointment was lessened by the knowledge that certain features of the split-section method had always been a thorn in the flesh to us, and we consoled ourselves

with the belief that we had about outgrown the idea.

THE GOAL ATTAINED, AND THREE PROBLEMS SOLVED.

The knowledge that the basic principle must ever remain unchanged until the nature of bees is perverted was a consolation, and we cheerfully and hopefully began to bestir ourselves to discover the correct method of applying it. It involved a little inventive genius, however, for our mind naturally reverted back to our hitherto unprecedented success with the little squares of artificial comb, and little time or talent was required to develop the principle, for we felt assured that we had at last discovered the correct method of doing it, and subsequent events only strengthened the conviction.

THE EQUIPMENT.

No extra equipment is required in practicing this method, except a form composed of four blocks of wood nailed to a thin board. The position of the blocks when nailed in place is such that they will fit loosely into the four sections when the frame holding them is placed upon the form. The thickness of the blocks is governed by the thickness of the section and the depth of cells in the drawn combs. A gauge is used for cutting up the comb into pieces of a size to fill completely and snugly the sections. Two sharp thin-bladed knives are needed; for if the cells are very deep it may be necessary to use a heated knife in order to do a smooth job.

HIVES AND SUPERS.

Any standard hive of the Langstroth dimensions is adapted for use with this method. Concerning supers, any of the standard brands may be used without modification. In my opinion, however, the one listed in the Root catalog and designated as "N," Fig. 707, is best suited for this method, since it is provided with section frames which protect the outside of sections, keeping them neat and clean. It also admits of handling four sections at a time over the form; furthermore, it admits of either comb or extracted honey production, or both together, by simply changing frames. With this method it is not advisable to use extracting-combs on the sides, but, instead, a half-inch space back of the outside separators. This will insure a better filling of the sections in the outside rows.

UTILIZING WASTE MATERIAL.

A sufficient number of extra-strong colonies should be selected for the purpose of drawing out foundation in connection with extracted-honey production. In this way the labor involved in the operation does not

materially interfere with the legitimate occupation of extracted-honey production, since this labor is usually performed by young bees that have not yet become field laborers. Viewing it thus, it is evident that by this process drawn combs are secured practically free of cost, since the spontaneous secretion of wax by such a colony would otherwise be carried out between the mandibles of the fielders, and dumped as waste matter; hence economy in the utilizing of waste material is a strong point in the development of this system. By keeping the super next to the brood-chamber constantly supplied with sheets of thin foundation in shallow frames, and the top one constantly supplied with empty extracting-combs, swarming is held in check, and a surprisingly large number of drawn combs may be secured per week without materially lessening the honey crop.

THE SYSTEM CONSIDERED.

While the development of the new system is fraught with rich promises of ultimate success along the line of the spontaneous control of swarming, there are other important factors to be considered in this connection besides the building of comb; and whether or not the psychic condition of the bees, resulting from the application of scientific principles, will be of such a nature as completely to overbalance abnormal conditions within the supers, and ultimately result in the spontaneous prevention of swarming, is a matter yet to be determined, since failing health, during the last two seasons, has prevented further experimenting along this line. Viewing it thus we do not feel competent to forecast ultimate results along this line.

Drops of nectar will usually be visible in the bottoms of cells when about $\frac{3}{8}$ inch deep. If left much longer, sufficient nectar will have accumulated to necessitate throwing it out with an extractor; in which case it may be fed back, but not to the finishers, since it would undoubtedly counteract the influence against swarming. This, however, is a matter that has not yet been fully determined for reasons just mentioned. A little experience, however, will enable the beekeeper to adjust the matter of depth of cells to suit the exigencies of the case. Undoubtedly the possibilities of section-honey production and swarm control along psychological lines, a condition of soul satisfaction and content as applied to bees, are at present beyond the control of the average beekeeper.

THE MODUS OPERANDI.

In view of the crude and rambling manner in which the details of the method have

been discussed, it seems like a repetition to outline the mode of operation. Having the sections folded, placed in frames, and corded up within easy reach, and the squares of drawn comb cut to the right size, place a frame containing sections over the form; place a block of drawn comb in each section, gently placing it in a correct position by means of a follower of equal longitudinal dimensions, and secure it by means of melted wax mixed with a little rosin, and applied with a brush around the edges of the comb. A little practice and experience will enable one to operate rapidly and neatly, and with results that will be highly gratifying.

OUR CLAIM.

We claim for this method, first, perfect control of bees along psychological lines; second, control of swarming—if not spontaneously, at least by means of a simple equipment; third, an increased production per colony of 50 to 100 per cent; fourth, a higher percentage of honey in the fancy grade; fifth, safe transportation by freight, since the combs are built solid to the wood on all sides; sixth, a perfect section of honey, practically free from pop-holes; seventh, it protects the outside of sections, keeping them clean and neat; eighth, it admits of handling four sections at a time over the form; ninth, sections are filled with combs without removing them from frames; tenth, it minimizes expense by utilizing waste material in comb-building; eleventh, it minimizes expense for equipment, and is rapid in operation and positive in results.

Birmingham, Ohio.

DEMONSTRATION ON HANDLING BEES GIVEN TO CLASS IN AGRICULTURE

BY ARTHUR RHODES

The picture shows the agriculture class from the Langston Agricultural and Normal University for the colored people of Oklahoma.

These young men had never taken up the study of bees, and I invited the professor and students of the agriculture class to come to my home, where I gave them a lecture and demonstration on handling bees. The class was very enthusiastic on the subject of bees, and a number of them said that they were going to take up the study when they returned to their homes in different parts of the State.

I gave a lecture to the children of our public school last fall, and offered a prize for the best essay on the subject. There were 12 papers submitted, which were very good. The papers were graded, and a prize



Colored students from the Langston Agricultural and Normal University taking a lesson on bees.

was awarded by the State President, Mr. N. Fred Gardner, of Geary, Okla.

With the increased acreage of alfalfa, sweet clover, and cotton, Oklahoma will be one of the leading honey-producing States of the Union.

Coyle, Okla.

BEEKEEPING IN NEW ZEALAND

Some of the American Methods a Failure Due to the Difference in Locality

BY C. A. OLDMAN

Naturally I thought I was on a fairly safe wicket by following the plans of management given by such prominent beekeepers as Dr. Miller, Alexander, Doolittle, and others; but expensive experience has proved otherwise, and now I can agree with Hutchinson that "The question of all questions is that of locality."

In short, I find by experience that, if one would be successful in beekeeping, locality must first be studied thoroughly, and then any desirable plans modified to conform to the conditions that locality enforces. Weather conditions in the same locality vary, and a plan that works to perfection in a normal year will require modifying to suit unusual seasons. For instance, four seasons ago shaken swarming on foundation was a perfect success, the season being a fairly nor-

mal one, and the weather warm; but the last three seasons it has been far from successful, owing chiefly to very changeable weather, and I had to give a frame of brood and two or more drawn combs (the rest being foundation) when shaking, or I found that no attempt was made to begin operations in the brood-chamber. An excluder was used in every instance.

The plan of placing the shaken brood-chamber to one side in order to allow brood to hatch out also had to be modified, and I practiced putting it on top of a colony that could use the extra bees, giving the shaken swarm a brood-chamber from another shaken colony later on, if they required it, when their own brood-chamber was well advanced. I have had too many cases of maturing brood perishing, owing to cold changeable weather, and I have no intention of again leaving brood-chambers to care for themselves, as I consider it far better to be sure than sorry.

Alexander's plan for increase proved a dismal failure, so far as I was concerned last season. I tried it rather extensively, with the result that I materially reduced my prospective honey crop. Most colonies treated made no attempt to start a brood-chamber and the majority of them started cells on the frame of brood given below, and superseded their queens even though their queens were young and had proved to be first-class before the change was made. It

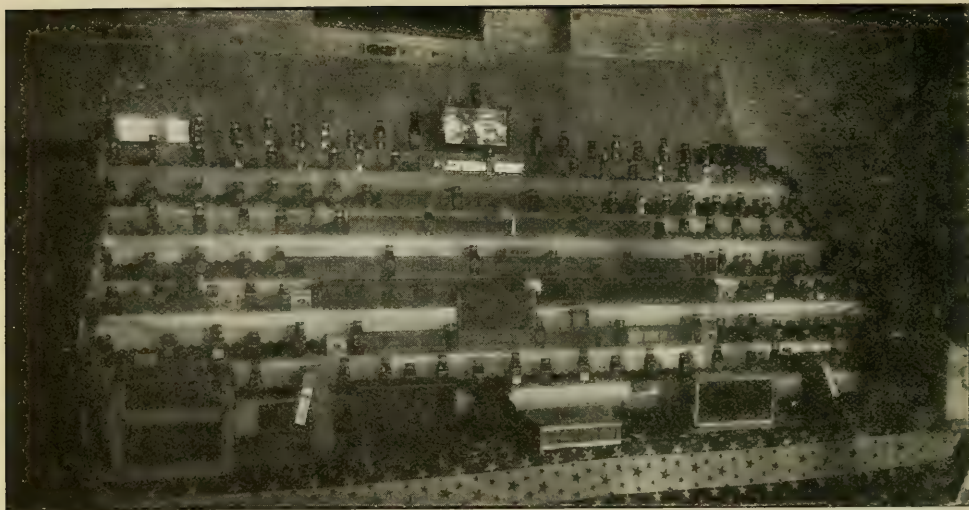


Exhibit of honey and fixtures at the Madison County Centennial, September, 1912.

is only fair to add, however, that last season was a very peculiar one, and very cold wintry weather alternated with nice summer weather, so it is fairly safe to blame the weather rather than the plan for the failure.

I intend to give this plan another trial this coming season, but will use wire cloth instead of the excluder under the shaken brood-chamber on top of the hive, and thus force the shaken bees to remain below with the queen.

I also intend to try the wire-cloth plan for treating any cases of foul brood I may have. I will treat them practically the same as outlined by W. W. Case in *GLEANINGS*, June 5, 1913, p. 406, with the exception that I will fasten wire cloth under the old brood-chamber and place it on top of the new hive, using an escape for the bees to leave the old combs and find the lower entrance. My reason for doing this is to give the maturing brood the benefit of the warmth rising from the cluster in the hive below, and to avoid all risk of chilled brood by a sudden cold change. If this plan proves successful it would do away with all risk of combs melting down from want of ventilation during hot weather.

In regard to the swarming problem, I would say that our season here extends for six or seven months, and the plans that work well in preventing swarming in the short seasons in most parts of America are hardly suitable here unless, perhaps, they were used repeatedly. I have just about decided that it pays me best to allow prime swarms to issue naturally, or to practice shaken swarming (keeping the queens clipped, of course), and hive on the old stand,

shaking all bees from the brood-combs along with the swarm, and giving the old brood-chamber to a weak colony as a super.

I use excluders on all colonies, and produce chiefly extracted honey.

My purpose in writing this letter is certainly not to decry the plans and suggestions of experienced beekeepers in America, but rather to give a warning to beginners in various climates to go easy with any plan they may fancy, and avoid paying too dearly for their experience. A beginner is very apt to jump to the conclusion that, if prominent beekeepers' plans work well in his own locality, they are bound to be successful in every locality. This false idea can not be corrected too often.

Canterbury, New Zealand.

HONEY DISPLAY AT THE MADISON COUNTY CENTENNIAL

BY LOUIS WERNER

The honey display shown in the illustration was made at our Madison County Centennial, Sept. 14 to 21, 1912. The celebration was like a street fair. There were exhibits of cattle, poultry, and farm produce, as well as old-fashioned relics 100 years old. They said, of course, we must have our bee-man make an exhibit.

The display was 16 feet long, 8 feet high, and contained comb and extracted honey, live bees, one full colony, two one-frame nuclei, and comb foundation. All the fixtures that are used in a first-class apiary were shown. Everybody thought it was the best exhibit on the centennial grounds. This

display contained 300 lbs. of honey, ranging from the smallest section to the full extracting-frame shown on the upper shelf in the center. I was awarded eight blue ribbons as first premium.

In 1886 my apiary consisted of 90 colonies which increased to 140. This yard produced 7000 lbs. of comb honey, nearly all of which was salable. White-clover pasture at that time was better than now. I got the bee fever, and the only remedy at that time was more bees. The first thing I knew I was overstocking. I soon had an apiary of 300 colonies. Finally I contracted rheumatism, and had to reduce my apiary to a smaller number of colonies; but the bees were of better quality. I handle nearly all of my bees without a veil. The best bees I have found are a cross between the Italian and Carniolan or Caucasian bees. They are good workers, winter well, are easy to handle, and they do not swarm any more than the pure Italians. I have tried them all.

Edwardsville, Ill.

BEE INSPECTION IN MONTEZUMA CO., COLO.

BY MRS. GEORGE TAYLOR

Since Mrs. H. M. Barber died (about ten years ago) Montezuma County has had no bee inspector, and it is remarkable how rapidly conditions change for the worse. Last spring the beekeepers became alarmed as to the outcome, so they got a petition before the county commissioners, asking for an appropriation to carry on inspection. The commissioners were indifferent, but, nevertheless, allowed \$200 to carry on the work. The next step was to get into communication with our State Inspector, Wesley Foster, who came to our rescue, appointing George Taylor as inspector, and spending a few weeks now and then through the summer to see that things were going all right.

While Mr. Taylor was gone he found many opportunities to get bees at a very low price, so secured all he could. This meant work for some one, putting together supplies and looking after the home bees; so, of course, the work fell to me. Our small son had to amuse himself, and his great delight was to get a smoker. He wore a large bee-veil part of the time, with stockings drawn up on his arms; and because he had seen "Dadge" roll his socks on the outside of his overalls he rolled his little overalls up so his stockings would show. Then he was prepared for battle. He would play all day long with this outfit, and many a time has stood right in the midst of singing bees, unafraid if he only had a smoker. His



Murton Ross Taylor, son of Mr. and Mrs. George Taylor, of Dolores, Col., age 2 years, 2 months, youngest member (enrolled by proxy) of State and National Associations. Photographed by Frank Rauchfuss.

prattle never ceased; but in the main he talked of bees and would say, "Murton better smoke bees; might 'ting me."

Then he discovered that, if he would puff the smoker at the lambs they would run and jump to get out of his way, so in this picture this is what he was doing.

Dolores, Colo.

AN HONEST ADVERTISEMENT

BY R. F. HOLTERMANN

Under "Stray Straws," Dr. Miller, page 705, Oct. 15, has something to say upon the subject of advertisements, and then he has the courage to say, "A lie is a lie, whether general or particular; in an advertisement as well as elsewhere." Then the editor, in a footnote, adds, "The time has come now when an exact and honest statement without exaggeration will bring in larger returns of money than boastful advertising that tries to make the buying public believe what it knows is not true." Both have touched upon a point of the very deepest importance to the people at large.

Many of the flaring advertisements we see, claiming certain articles as being better than any others, show upon the face that they are made by people who do not care whether they tell the truth or not. Yes, I assert it—*do not care*; because if they did they would not make them unless they *knew*. How can a person say certain goods are the best unless all others have been examined,



G. A. Barbisch, the beekeeper who can not walk, and a part of his apiary.

and there is no ultimate authority on the matter as to what is best? Then when it is the best, is it modest and becoming to say so? Many may laugh at me for speaking or writing of business modesty, and yet there are such things. The policy of some of the most successful business men has been to show forth the merit of their own goods, and not to pick holes in the other man's goods; and I can think back to purchases I have made from such people, and with my money went my profound respect and resolve to put in their way what I could. This line of "blowing" has, perhaps, wrought out its own destruction. They are read but not believed; they are no longer effectual in influencing thinking people. Besides, the superlative in description has long been reached, and we can no longer outdo the other in language.

But this is not the reason why I have opened up this subject. Let us be honest, and ask ourselves who makes any pretense of telling the truth. The honest answer is, "The person who in description does not go beyond fact." I have watched the growing habit of children of going beyond the truth, and, once begun, it grows until I have thought or said, "What will you do when you have reached the limit of language or imagination?" When a person tells me that he has seen some "great big" article, or writes of "great big fellows like you, with strength to burn" (see first item, *Stray Straws*, Oct. 15th), I say to myself that he is already digressing.

This is recorded as no jest; but many of us have heard of a lady who told the late D. L. Moody she did not know how to overcome her habit of exaggeration. Mr. Moody said, "Call them lies, madam; call them lies." This is putting the matter in its true light. If we examine our lives we must bear record to this, that, as we conscientiously value the truth, we become careful not to overstate. We may bear false witness by misrepresentation; and misrepresentation may be accomplished by telling only one side of a story. I have often had to remember the passage of scripture, "In the multitude of words there wanteth not sin." I never have perfect confidence in a person's truthfulness and reliability when he goes beyond the truth in telling a story.

Brantford, Canada.

WORKING WITH BEES FROM A WHEEL CHAIR

BY G. A. BARBISCH

The picture shown includes part of our apiary of 70 colonies, my daughter, and myself. I am sitting in a wheel chair. I hurt my spine some years ago, and can not walk; but that does not hinder me from keeping bees. I often work all day long with the bees from my wheel chair. Of course, my wife helps me all she can, and we get along well with our pets.

This season, about the middle of July, we extracted over 3000 lbs. of the finest clover honey we ever had. This locality had

a fine flow from white clover. It has never been more abundant than this year.

La Crescent, Minn.

HOME-MADE BEE FIXTURES

BY W. L. PORTER

One frequently reads articles in bee-magazines commending the beekeeper who makes his own supplies. Mr. W. Foster recommends this in the *February Review*. I have had a long and extensive experience along this line; and while Mr. Foster has had a chance to make a good many observations I must differ with him on the subject.

In the many years I have been handling bees I have been constantly running up against the home-made hive, and it has been almost invariably in my experience that such hives are a detriment and an expensive article to any one who has to use them. So far as my experience is concerned, they are an expensive article, even if the beekeeper could get them for nothing.

I have bought a great many hives of bees. These bees are in all kinds of hives, and many of them are in home-made hives. While these hives have not caused all the gray hairs, the trouble and worry over handling home-made hives and fixtures are certainly enough to make one's hair turn gray. I do not say that a beekeeper can not make a perfect hive; but I do find in my experience that nine-tenths of the home-made hives are imperfect, and even hives made by good carpenters are off somewhere. The brood-frames are either too long or too short; the rabbets where the frames hang are too shallow or too deep (often the frame hangs so as to rest on the bottom); or the supers are too shallow or too deep. I often get hives where the end-bars of the brood-frame touch the ends of the hive; and often the top-bar is so thin that the frame sags under the weight of the honey in the frame.

It has been my experience in handling and inspecting for foul brood that the home-made hive is one of the most menacing parts of the work on account of its being almost impossible to get into the hive. The difficulty in finding lumber of the right quality and dimensions makes it almost impossible to produce an ideal hive. I have known a good many planing-mills to try to make hives to sell; but the trouble to get the proper lumber, and the mistakes they make, cause them to discontinue making them.

In moving my apiaries from Colorado to Idaho I tried to weed out all of these misfits, and broke them up for firewood. They filled a woodshed to the roof. Some of these

hives were made of the best clear lumber; but their imperfections made them worse than useless.

I think it best for those starting in the bee business to buy hives made at factories which have made the hive a study. In this way one can get the best. Then buy the same kind each year, thus having all the hives and fixtures alike. Parts of the hives are then interchangeable.

The same is true in manufacturing foundation. It is a science to handle beeswax properly. The factories exchange foundation for wax, charging from 15 to 16 cts. per pound. By exchanging, one gets the best, and avoids the muss and the expense of getting cans, press, etc., to make up the wax. I believe if a beekeeper is out of work in the winter, it is better that he should get busy raising chickens or something else that will pay, and let factories which have had experience and have the best machinery do the work of making the supplies.

Caldwell, Idaho.

BEEKEEPING IN AUSTRALIA

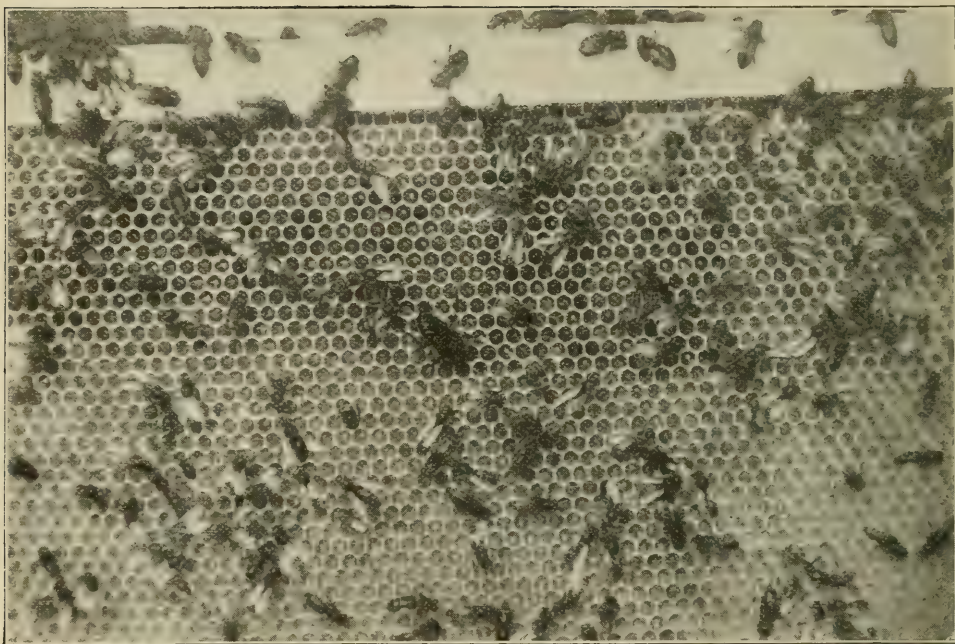
Getting a Queen into a Laying-worker Hive

BY MAJOR SHALLARD

Louis H. Scholl says, p. 720, Nov. 15, 1912, that he has never succeeded in getting a laying-worker colony to rear a queen successfully. I do not have many colonies in this condition, but I do not recollect having much bother in getting the bees to rear a queen. Mr. Scholl is speaking, apparently, of the attempt being made while the laying workers are still in the hive. I should think this would be impossible unless there were enough new bees in the hive to outvote them. I once found a colony in a very bad way with laying workers, with not more than a quart of bees in the hive. I shook them out, and gave a frame of larvæ, and another of hatching brood. They reared a nice queen, which proved to be a good layer.

BEES STINGING BLACK HATS.

Bees will sting black hats venomously, and will get so wild that they will soon transfer their attentions to the wearer, and drive him out of the apiary. A young fellow working for me once came to the apiary wearing a new fawn-colored felt hat. The bees took a violent dislike to it at once. In less than ten minutes the hat was the center of a cloud of angry bees, and the wearer had to decamp quickly. In this case I think it was the smell of the new felt that was disagreeable. I watched a peculiar experiment of bees stinging on one of my farms,



A bumble-bee that was obliging enough to pose for its picture.

although the operator did not intend it as an experiment. The bees here are always very spiteful during ti-tree bloom. This starts about the end of March, and has three sessions or lots of bloom, lasting in all until the middle of June. During the time of bloom the honey seems to be secreted in cycles—that is to say, the honey will come with a rush for three days, and then let up for two days, and during these spells the bees become very savage. The man I refer to was wearing an old pair of trousers all gummed up with honey and dust, and he got very few stings. Thinking, however, that they were really too dirty to wear any longer, he discarded them and put on a clean pair. A little while after, the bees chased him inside, and he was glad to get into the old ones again. He repeated the attempt to wear the clean one, three times, and then gave it up, and kept to the old ones until the end of the season.

ARE REDWOOD HIVES MORE IMMUNE TO DISEASE THAN THOSE OF PINE?

I think not. I have a lot of redwood hives in use—California redwood—and also thousands of redwood frames, and the bees become diseased just as easily in one as in the other—at any rate I can see no difference.

I am writing from a semi-tropical climate, and we get no American foul brood; but we do get black brood or what has been renam-

ed the European variety. Paralysis, or Isle-of-Wight disease, is also found.

Away down south, 400 miles, where I have my other apiaries, the American disease is found, and the other two as well, although we have none of the former in the apiaries, nor has there been any for many years. Paralysis is not nearly as bad there as here. Unfortunately we have no foul-brood law in New South Wales, so each one has to look out for himself; and if his neighbor's bees get diseased, and the owner refuses to clean up, he must put up with it. We have to be thankful that nature provides a remedy for the disease in the bee-moth and the ants. The latter eat the honey and the former the wax, and there is an end of the foul brood.

South Woodburn, N. S. W., Australia.

A BUMBLE-BEE THAT WANTED ITS PICTURE TAKEN

BY HARRIS T. KILLE

Who says that bees are not intelligent? One might think that the bumble-bee shown in the accompanying illustration possessed human intelligence by the way it behaved. I was trying to get a photo of the queen; but no sooner did I get the camera focused than Miss Bumble Bee came and posed herself right in front of it. Now, isn't that the

way most humans behave when a camera is in sight?

Another reason that makes me think that this bumble-bee possessed human intelligence is that she started to eat the minute she came near any sweets. She enjoyed the meal for about five minutes, when the Italians, thinking she had eaten enough of their hard-earned honey, began to tug at her legs and wings. She then flew away. The queen was far too modest to pose along with the bumble-bee. Instead she stole around to the shady side of the comb.

New Brunswick, N. J.

A CONCRETE BEE-CELLAR IN WHICH UNIFORM SUCCESS IS ALWAYS ASSURED

The Value of a Properly Constructed Sub-earth Ventilator

BY H. HARLEY SELWYN

In the October 1st issue, p. 686, Mr. E. S. Miller, of Valparaiso, Ind., deals with the advantages of a good concrete cellar for wintering bees. He also mentions the depreciation of hive material, especially outer casings and extra labor involved in packing hives on their summer stands.

Now, I do not know what kind of climate Mr. Miller has to deal with; but I do know this: that the construction of the cellar, mode of ventilation, capacity, percentage of loss, and cost of putting away 100 colonies so closely agree with my experience during the past four years that I can not refrain from reiterating the words of Mr. Miller.

A few years ago I undertook to construct a cement cellar (strangely enough), 16 x 20 feet and 7½ feet high, as suggested. The climate in the vicinity of Ottawa, the location of my beeyard, is extremely cold in winter; and to temper this air before entering the cellar I provided for a sub-earth ventilator for running under ground about 60 feet from the hillside (the cellar is situated on a rising ground), and entering the floor of the repository. This provides perfect ventilation, I find; and, to prove my statement further, the percentage of loss has been practically nothing. Of course there is an outlet for the foul air in the ceiling above, which passes through into the main room of the bee-house proper above. Mr. Miller recommends a chimney descending into the cellar on the lee side to take the air from the bottom of the cellar. As carbon dioxide is heavier than air, and as this gas is largely given off by the bees, it is natural to suppose that, under normal conditions in what might be a hermetically sealed cellar, it would be in large quantities

in the lower levels, and cause uneasiness to the bees; but in my experience, the heat created by 100 colonies in a compartment 16 x 20 feet has been so marked that there is always a quick-flowing current of air out of the main vent; and to fill the vacuum created, of course fresh air, moderated by its long passage under ground, is entering. For these reasons I consider this method of ventilation superior to any other, and my experience has borne me out.

The cost of labor in putting my colonies in has been about \$3.00 each fall, although it took the man I hired only part of the forenoon to carry them in and get them on the racks previously prepared. I paid him well, as he was very careful in handling each hive; and I believe in rewarding conscientious service. He has done this work for me for several seasons. I prepare the hives for moving in some time before, so that there may be no hitch in proceedings.

Each hive is given a new quilt of 6 to 8 oz. duck, cut nice and square, and leaving no holes for bees to get out after the cover comes off. Besides, a new duck quilt assures good slow upward ventilation, which I consider essential for the best of success in wintering. All hooks or crating staples are removed except one at the back of each hive, which holds the bottom-board in place and yet allows the body to rise in front, so that blocks may be inserted to admit an abundance of air to the cluster; and also to avoid the blocking of an ordinary 5/8 entrance with dead bees before the winter is half over. This should be done after the hives are in and the bees settled down.

Our winter extends over 5½ to 6 months of the year, and year after year the bees in this particular cement cellar have been in continuous confinement for that period, and yet come out strong, lusty, and clean. I do not think many beekeepers can place the reliance I do in this cellar.

Its construction as already mentioned is simple to a degree. Just clean out a 16 x 20 space 8 feet deep in a good dry hillside, having plenty of natural drainage. Put in a wooden form about 12 inches from the earth, made to hold back the cement, and fill it in day by day, taking care to leave plenty of big stone projecting from the last day's work to make good connection with the next day's mixing. When completed, one has a base for a house which is practically everlasting. Doors which sag and frames and floors swaying are unheard of and the bee-house above proves a source of satisfaction.

The ventilating system in my case was put in after the cellar walls were built. A

little tunneling under the wall was all that was necessary to pass the 6-inch tile pipe through. This tile piping serves a twofold purpose. It acts as a ventilator, and also as a drain for any water which might come by seepage in on the floor. I have had the floor cemented also, and graded to slope from all sides to the center where the elbow of the drain rises flush with the floor.

I can not too highly recommend this scheme of wintering, and I am glad to have found another who so heartily endorses it. Thanks to Mr. Miller.

Guelph, Ontario, Can., Oct. 12.

HIVE ENTRANCE MADE SMALLER BY THE BEES

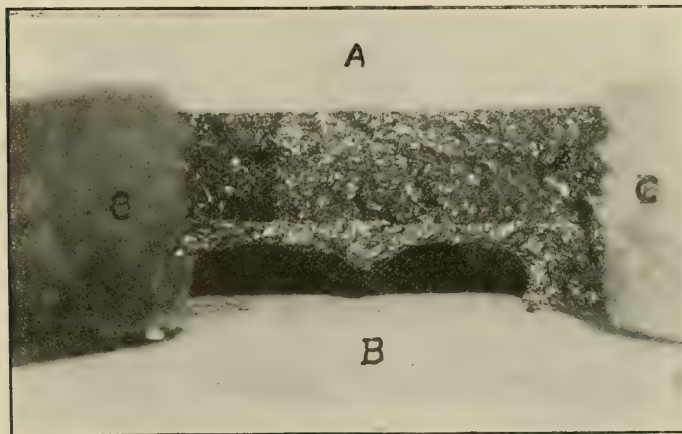
JOHN VOLLMER

I discovered the hive entrance shown in the picture when about to put up my bees for winter. My wife hived a swarm in August in an observation hive. I left them in it, after covering it with a deep telescope cover, intending to put them indoors for the winter. They were a stock that could always take care of themselves and robbers too, so I didn't contract their entrance too much; but their glass walls must have been chilly, so they built a double-arched doorway to shut out three-fourths of the cold blasts. They built it of propolis, and it much resembles stucco work.

In the print, A is the hive-body; B the alighting-board; C, C are blocks to cover the longest part of the opening.

The photo is slightly too large, as the space from the landing-board up to the hive-body is about $\frac{7}{8}$ inch.

Ashland, Pa.



Hive entrance partly closed with propolis.

"BOOST" SWEET CLOVER

BY HARRIS T. KILLE

Sweet clover is on the stage to win, and it is up to the beekeepers to make it win. Within ten years, I believe sweet clover—that noxious weed which but a few years ago State legislatures took it upon themselves to eradicate—will be grown as extensively as alfalfa. But in order that this may be a fact and not an idle prophecy, beekeepers will have to do their part toward making it a fact. They will have to "boost" sweet clover. The farm papers are beginning to boost it; the State experiment stations are boosting it, and they haven't any honey to get by so doing either.

In the Sept. 20th issue of the *Country Gentleman* is an article by J. C. Mohler on "A Roadside Weed of Worth," subheaded "Sweet Clover Gives Promise of Becoming a Rival of Alfalfa on Many Soils." The facts of this article are drawn from the experience of a Mr. Fred Miller, Jr., dairyman farmer of Shawnee County, Kansas. It tells of the difficulty Mr. Miller had in obtaining seed for his first half-acre trial-plot of sweet clover. He was subjected to the severest criticism for attempting to propagate the pest. Seedsmen and farmers hooted at him. But he had fed some that he obtained by the wayside. He had found that, when placed in the feed-racks along with alfalfa, 21 out of 25 cows ate it in preference to alfalfa; so he planted in spite of hoots and criticism. Here, quoting from the *Country Gentleman*, are the results he obtained after he had planted and grown his half-acre plot of sweet clover:

The second year of my experiment I wanted to know the value of sweet clover as a milk-producer. I took ten average milch cows from good prairie and blue-grass pasture about May 10th, and put them into this sweet-clover patch. It had attained a very rank growth, and was more than two feet high. The cows were kept there two weeks, and at the end of that time had gained an average of five gallons of milk a head. About June 1st I returned the cows to the prairie pasture, and in two weeks they had lost the five gallons that had been gained.

Brought back to sweet clover, in two weeks they gained three gallons. The weather was very hot, and the clover was really too rank for the best results. But these cows maintained an excellent flow of milk throughout the season on this little half-acre tract of sweet clover. For pasture it is far better than alfalfa in at least one respect: It

contains a poisonous ingredient which is wholly harmless to stock, and which eliminates any possibility of bloating in ruminants, which is the most serious drawback to alfalfa as a pasture plant.

Horses are especially fond of sweet clover as pasture and hay, and hogs and cattle thrive on it. Chickens, big and little, like young sweet clover better than alfalfa.

As a soil-builder sweet clover is unexcelled. The two-year-old plants die. The roots, extending eight to twenty inches deep, from quarter to half an inch in diameter, decay, adding humus to the soil. Where the plant is allowed to reseed itself this becomes an annual occurrence. It breaks up the soil to admit air and water, and, being a nitrogen-gatherer, it also fertilizes the land. Ground intended for alfalfa will be greatly benefited by growing sweet clover for a couple of years before.

Sweet clover has proved of real service on worn-out upland farms for it is a soil-renovator as well as a flesh-former, a milk-maker, and a money-maker. It will thrive where not even weeds will grow. It prospers on the best soil, and will produce abundantly on barren wastes. It is the greatest thorough resister of all forage plants; its roots penetrate the hardest ground, even taking hold in crevices of rocks.

There are some facts in the above that it would be well for our farmer neighbors to know. Why not send the names and addresses of your farmer neighbors in to the *Country Gentleman*, Philadelphia, and have them send marked issues of the Sept. 20th issue to them? I'll venture to say that there will be more than one trial-plot of sweet clover in your neighborhood next year if you do. And, while you are about it, it might be well to see to it that Bulletin No. 244 of the Ohio Experiment Station falls into their hands. This will be a good "follow up," such as our present-day advertisers are using so successfully. This bulletin will give them directions for planting, inoculating, varieties, securing seed, etc.

Writing of this bulletin in *Kimball's Dairy Farmer*, Mr. W. B. Quarton, who has furnished that well-known paper with several articles on sweet clover, its value as a fertilizer, etc., says: "This bulletin is the most exhaustive thing I have even seen on sweet clover. It covers the widest field and the widest investigation. The results and conclusions attained bear out fully and completely all I have said in *Kimball's Dairy Farmer* in regard to sweet clover, and very much more. In composing these articles that I have been writing, I have been very conservative; but this bulletin goes far beyond any of the claims I have made for sweet clover; and any farmer who will read the evidences given by the 1882 farmers of Ohio as to the value of sweet clover for all purposes, can not help being convinced of the real merits and value of sweet clover to the farmer."

Here is the summary given in the bulletin referred to, showing the various soil types on which it was found growing: On the sands of the lake shore, the sandy loam,

the pure sand dunes, on the thin soil of the "opens" on the lake ridges, on the old lake-bed soils, on very heavy soils, on gravelly moraines, on black prairie soils, on disintegrating limestone outcrop, on the river bottoms, on the white loess soil, on the red clay soils, on shale banks, sandstone bluffs, sour clay, and the sandstone quarries 20 feet below the surface.

GLEANINGS has a wide circulation, but I don't believe there are many subscribers but live on or near at least one of the above-mentioned types of soil; and as Mr. Quarton, the "conservative" writer quoted above, says, "It will grow from the Gulf of Mexico to Canada," there is no reason why every beekeeper can not have a field of sweet clover growing on a neighbor's farm as well as his own by next year. Once the farmers have learned the value of sweet clover for feeding stock and renovating worn-out soil. I believe it will be grown extensively by them.

Let us beekeepers turn missionaries and introduce sweet clover to our farmer friends as a falsely condemned criminal—a guileless wayside waif—that is waiting to fill their pails with milk, their soil with fertility, their barns with plenty, and their pockets with money, if they will but transplant it from the roadside to their fields. At any rate, let us see to it that there are no Sept. 20th issues of the *Country Gentleman* to go to the scrap-pile; and, if possible, back numbers of *Kimball's Dairy Farmer* containing Mr. Quarton's articles on sweet clover ought to be circulated. And, by all means, see that Bulletin No. 244 of the Ohio Experiment Station has to be run through a second edition.

New Brunswick, N. J.

WINTER FEEDING

BY O. S. REXFORD

Our usual fall honey-flow in this locality was nearly a failure in 1912, and the bees started in for winter light in stores.

I fed late in the fall, but the unusually warm weather in December and January, I think, caused a greater consumption of honey than would have been the case if the weather had been normal. I had no extracted honey to make candy, and I knew of no other very satisfactory way to feed in winter weather. Still, if I did not do something I knew that I would lose some colonies through starvation.

When Feb. 1st GLEANINGS came I was undecided whether to try to feed in some way or to let them take their chances. I

read Mr. A. C. Miller's article, page 80, was interested, and soon had twelve colonies feeding from the Miller-Fuller candy. Yesterday was warm, and I investigated far enough to learn that the bees found it O. K. Now if I lie awake nights it will not be because I am afraid my bees will starve. Some may think that a candy which is 14 per cent glucose is not safe for a winter feed; but bees do not often need extra feed till late in winter, and I think all will admit that it is all right in February when they are sure of a flight soon. On the evidence Mr. Miller gives I believe it is all right for any time in the winter. I think that I shall try one or two colonies, taking away the honey next fall.

It was a new idea to me that a thermometer would tell when evaporation had gone just far enough. Two hundred and thirty-two degrees seems to be just right for cold weather. If for use in warmer weather after brood-rearing is started, probably it should boil until the thermometer indicates three or four degrees higher.

Any small shallow box is all right for a feeder, turned over on the brood-frames. After putting on the packing the bees are all right till the candy is consumed.

Two or three years ago I tried to feed coffee A sugar and also loaf sugar. It was not satisfactory. The sugar remained so dry that very little was consumed of either kind.

Winsted, Conn., Feb. 22, 1913.

LAYING WORKERS CAUGHT IN THE ACT

BY JUAN CHRISTENSEN

I am having some experience with laying workers which may be of interest to bee-men. I may mention that I have 16 colonies of bees about 20 miles away, and seldom see them. I have already secured 700 kilos (1540 lbs.) of surplus since October, and expect to get 300 more by the end of March. I have a lad to look after them.

About two months ago I brought some bees with a queen, and put them in a ten-frame hive across the way in this city. The bees are supposed to be Italians, but are more likely hybrids. They are two and three banded. The queen was laying, and there was a good deal of brood.

I had not been able to look into the hive for over three weeks; and when I opened it there was no brood of any sort, capped or uncapped, and no queen to be found. I got two capped queen-cells and pinned each to a different frame. A few days after, both queens had left their cells; but I could find only one, a fine-looking queen. By this time

laying workers had got started and were laying with great enthusiasm, as every empty cell had eggs, from three to eight. On the second, third, and fourth day the queen was there all right.

By this time some of the laying-worker eggs had hatched. Now, I thought that, when the queen becomes fertilized (there were a few drones in the hive), she would not have a cell to lay in. I might have starved the brood. Chilling was out of the question, as the temperature at this season is seldom under 35 degrees centigrade (95 Fahr.) day or night, but most of the cells were full of eggs. In order to experiment I took a frame, shook and brushed the bees off, and set the frame near some red ants. In three or four hours they had carried off all the eggs and a lot of the brood, and what had not been carried off yet were dead—killed by the ants. As this seemed to work fairly well, I had all the frames out, two or three at a time, until I had eight frames clear of eggs and brood.

Two or three days after, I found that every cell again contained several eggs. While looking for the queen I found a worker with her abdomen well down in a cell, and her wings flat against the combs. After sitting quite philosophically for a good while, over twenty seconds, she got out and went down head first into another cell, and then quite deliberately put her posterior part down into the cell and remained sitting with her wings spread over the cells as before. I kept my eye on her; and when she next put her head into a cell I laid a pocket-knife over her and went over the way to get a pair of pincers. With this I caught the bee by the wing and was about to put her into a pen-box; but before I got this done the wing broke and she escaped.

I continued searching for the queen, and found another bee under suspicious circumstances—that is, in the position of the previous one. I caught this one and put her into a pen-box. I continued looking for the queen, and stumbled on another worker laying. This one I lost, as she went to the other side of the frame and I could not recognize her with certainty again. Shortly after, I found the fourth worker laying, and put this one into a match-box. All four were on the same frame. It seemed to me that a large proportion of the bees looked longer than usual; but the ones I caught did not seem as long as the others, but they did seem younger. The queen was nowhere to be found, and I am certain that she must have been killed. I have gone carefully over every frame several times, and there is no queen to be seen; but I found another worker laying yesterday.

I am sure that there are scores of laying workers in that hive, perhaps hundreds, and may be all have a "try" to see what they can do at laying. I notice that all the eggs are not alike, as many are small and misshapen. Probably the older the bee when it starts self-development, the worse the egg it lays. This will also explain why a queen is not tolerated. She is a sort of Ishmael among them, and they are all against her, as she interferes with their business, wanting to monopolize egg-laying.

Santiago del Estero, Argentina, S. A., Dec. 12, 1912.

SMALLER ENTRANCES IN THE WORKING SEASON

BY FRANK M'MURRAY

Will you permit a few words in regard to large and small entrances from an old beekeeper, but one who, heretofore, has never voiced his opinions for publication touching any subject of the beekeeper's art?

It is generally conceded that entrances should be contracted during the winter and early spring; but there is a wide difference of opinion as to their correct size during the working season. Evidently, entrances may be either too small or too large during the summer months. I think a $\frac{3}{8}$ or a $\frac{1}{2}$ inch entrance the entire width of the hive an ideal one for a strong colony during the working season. Bees show their dislike for an entrance much larger, by sometimes partly closing it with propolis. A natural swarm will sometimes refuse to accept a hive with a large entrance, though containing full sheets of foundation; but I have never known a swarm to desert foundation in a hive with a small entrance. A large entrance is especially objectionable in high altitudes where the nights are sufficiently cool to chill the brood in spite of the efforts of the bees to keep it warm. My experience shows that large entrances do not check the swarming instinct, because they do not give real ventilation. If there is real ventilation, or circulation of air in the hive, there must be an opening near the top.

These observations are true of bees under normal conditions and acting normally; but bees do not always act normally. Sometimes abnormal action will be confined to a single colony; but it may spread to an entire apiary, and one can not expect bees, while acting abnormally, to follow their usual rules of action. Unusually late swarming is an abnormal manifestation of the swarming instinct. The clustering of a colony on the outside of a tree, and the spending of the working season building comb and stor-

ing honey there without any protection from storms or cold are abnormal forms of bee action. If careful discrimination is to be made between the natural and unnatural actions of bees I think it would help beekeepers to understand better the likes and dislikes of bees, thus avoiding many mistakes.

Aurora, Mo.

PLACING HIVES ON CEMENT SLABS

Sowing Sweet Clover Seed

BY C. A. BUNCH

Last fall we made 40 cement slabs for our 80 hives of bees. Two hives were placed on each slab. These slabs are two feet four inches by 3 feet 8 inches, these dimensions being just right for two 12-frame L. hives, which are reduced to 10 frames each by a division-board. Our hives face almost exactly east, and the slabs are placed the long way north and south, and are 9 feet by 10 feet from center to center, with a catalpa-speciosa shade-tree set 18 inches southwest from each cement slab.

When we made the slabs we cut 2 x 4 studding for the form, two for the end pieces 28 inches long, and the side pieces about 41½ feet long. These were laid flat on a level piece of ground, and were staked on the outside so as to make a square 2-4x3-10. This form was filled with good cement mortar. The proportion was 3 parts of sand to one of cement. This set 24 hours. Then the form was set up on edge, the cement covered with a newspaper, and another new slab was put over the one previously made. About every 24 hours a new slab was made in the manner above stated. The form was blocked up each time to the desired height until the pile of slabs was about a foot high. They were always covered in order to protect them from the sun. The pile of slabs was left thus for about 10 days until ripe. We used two forms, but several could be utilized very conveniently.

We have had one cement slab in the beeyard for 8 years, and it is just as good as new.

The 14th and 16th of December we sowed our sweet-clover seed, 5 acres on rye ground and 14 acres on wheat ground. This seed was in the hull, and the amount was 9 lbs. per acre. Later we sowed 75 lbs. of small or June clover seed and alsike on the same ground. The 5 acres are for pasture, while the 14 acres are for hay. I think in northern Indiana December is the time to sow sweet-clover seed that is in the hull. The seed is then in the ground in good shape by

spring, and there is no danger that it will perish on the ground. The ground of course was bare of snow at the time of sowing.

Lakeville, Ind.

ROBBING STOPPED BY A BUNCH OF HORSE HAIR PLACED OVER THE ENTRANCE

BY JAMES M. MUNRO

May I share with my fellow-beekeepers two real discoveries which I made in 1912? One came about in this manner: At the end of the honey harvest I was requeening my colonies. One day after dinner I opened one hive to see if the queen had been received all right. I was removing frames, had located the young queen, and had noticed a nice batch of eggs when I heard the distinct sound of robber bees. Before I could replace the frames and close up the hive they had made quite a start at robbing.

As my large smoker was in fine trim I thought that a good smoking outside would drive them home. Instead they continued to increase. Then I resorted to putting hay and grass at the entrance; but the force of robbers became so great that they would push it far enough to get in and out. I feared to add more hay lest I should smother the inmates; and, besides, I began to be peppered with stings.

As a next resort I tried a Myers bucket spray-pump; and, oh! didn't I deluge them until they hung around the hives like drowned rats? Then I let up. The reserves, however, renewed the attack. I went at it again reluctantly with the spray-pump, for it acted like a mule that kicks both ways. It squirted at the handle as well as at the nozzle, so that I got my share too. I finally gave up, owning that I was beaten.

As I walked away, expecting nothing but a ruined hive, I saw a bunch of horse-mane trimmings the boys had left near by. In my desperation I grabbed it and slapped it in place of the hay at the entrance of the hive. I wish you could have seen the halt. The bees darted back as if they thought it was some uncanny animal ready to kill them. I shouted "Eureka!" and, although soaked, I sat and watched the bees and enjoyed one of the heartiest laughs of the season. The robbing note soon died away, and they retired to their own hives.

During the rest of the season I used nothing else, when robbing started, than the wad of horse mane or tail hair, which I placed close up to the entrance of the hive. There was no danger of smothering the bees, so I could go away and start other work, quite contented that there would be no robbing at that hive. It does no harm to leave the

horse hair at the entrance till noon of the next day.

HONEY A CURE FOR BILIOUSNESS.

When ten years of age I had typhoid pneumonia. My life was despaired of; but after a long tedious illness I was able to go about with two crutches. From that time I always suffered from biliousness. Nothing seemed to help me. When I grew up to manhood I began to keep bees and to eat honey freely. It was honey instead of butter; honey instead of preserves and jams. In fact, honey three times a day. At present I do not know what it is to have a bilious attack. I attribute it to the free use of honey. Honey used in this way is not only a cheap medicine, but also a nourishing food.

Slate River, Ont., Can., Dec. 30.

HEATING EXTRACTED HONEY

BY LOUIS SCHOLL

Continued from page 797.

constructed out of concrete blocks, bricks, stone, or whatever is handiest. The illustration on page 767 will give the reader an idea of the one we are using. However, it should be borne in mind that we have changed to a deeper vat than the one shown, for the reason that we did not have entire success with this one. As mentioned, the honey in the upper parts of the cans liquefied too slowly, while the lower honey was getting too hot. This is overcome by using a deeper vat and a cover over all.

[When liquefying honey in 60-pound cans by the hot-water method, we never have any trouble in getting enough heat at the top. If the water reaches to within a couple of inches of the top of the can the honey *near the bottom* is always the last to liquefy. In our judgment, if so much heat were applied to the top of the can, there would be danger of scorching the honey in the upper part.—Ed.]

* * *

It has been said many times that it never rains in Texas; and, judging from the long dry spells and drouths to which we have been accustomed, a good many people who do not know Texas so well might have believed that the above is true. But, lo and behold! Texas has not only had rains of late, but continued rains for weeks and weeks; and the result is that washouts and floods, and damages of all kinds, were reported from all portions of the State. Thirteen and fourteen inches of rain in a few days was a common report, and creeks and rivers that had not been up for years turned into raging streams, causing much damage in many instances.

Heads of Grain from Different Fields

Solution for Destroying Grass and Weeds

I know that grass and weeds growing near the hives seem to be a matter of considerable seriousness to many of your correspondents, and the remedy seems to me to be so simple that it should require little consideration. It is known to all that merely scattering ordinary table salt in the vicinity of hives will quickly destroy all forms of vegetation, and is harmless to the bees. Any of the ordinary arsenical weed-killers, such as are generally sold by seedsmen, will also prove very effective. The beekeeper can prepare his own weed-destroyer, if he desires, by dissolving an ounce of arsenious acid and two ounces of ordinary baking soda in three gallons of water. This is, of course, a deadly poison, and should be kept beyond the reach of children. Ordinary sulphuric acid will serve the same purpose. It requires the addition of only about a pint of the concentrated commercial acid to about five gallons of water. Again, one can prepare a very cheap and effective weed-killer by dissolving 5 lbs. of copperas in 10 gallons of water. Blue stone, or copper sulphate, can be substituted for the iron sulphate in making this solution. To destroy the weeds the above solutions should be sprayed upon the grass or weeds around the hives.

BLACK MARTINS FOR DESTROYING THE MOSQUITO-HAWKS OF FLORIDA.

I note that some of your Florida correspondents report that the ordinary mosquito-hawks, or dragon-flies, are a serious source of loss, particularly to the queen-breeders. My own observation and experience for twenty years have shown me that there is nothing which destroys such enormous numbers of dragon-flies as the black martins, a large swallow which is found throughout the United States, and which should be plentiful in Florida. These birds subsist almost entirely upon dragon-flies, and it only requires concerted action on the part of those interested to provide them with the necessary boxes in which to breed. It follows, as a matter of course, that the number of such birds that could be attracted by a single beekeeper would not serve to exterminate the dragon-fly from his vicinity; but if the protection and breeding of these birds could be generally encouraged throughout the State, the number of dragon-flies would be enormously reduced in the course of one or two seasons. I might say that these swallows are not bee-eaters.

Detroit, Mich.

J. M. FRANCIS.

Danger of Supersedure of Queens Introduced by the Smoke Method

I should like to say a word to J. A. McKinnon in reply to his article on page 690, Oct. 1—that is, regarding the danger of supersedure of a queen in the smoke method of introduction. I have found that, if a hive is opened, in three or four days afterward the bees often ball the queen. When I find them balled, if I release them and smoke them in again in the same hive they will be found ten days later doing well. When I smoke in a queen I clean away the grass in front of the hive. The next morning I look for her dead body in front of the hive. If I do not find her I know she is all right. However, I look into the hive about ten days later; and if I find eggs and larvae I go no further. I lost just one queen this season, and none were superseded.

SHALLOW COMB TO HOLD THE DISEASED HONEY WHEN TREATING FOR FOUL BROOD.

Late last fall a friend and I bought 22 colonies of bees. It was too late to look through them to see the condition they were in. This summer there were three colonies that developed foul brood, and I want to tell how I cured it, for it was so easily done.

I prepared a new clean hive with full sheets of

foundation in nine frames. The tenth frame was a shallow extracting-frame filled with an empty comb, and was placed in the center of the hive. All the bees were brushed (not shaken) into this hive, and were allowed to remain that way for four days. At the end of the fourth day I took out the shallow extracting-frame and brushed the bees off and put a full-sized frame with a full sheet of foundation in its place. During the four days the bees had stored all the diseased honey they carried with them in the shallow frame, so I burned it as soon as removed. That settled the foul brood; and what nice new clean combs they have now, well filled with honey and healthy brood! The old hives and combs were placed in an out-of-the-way place with enough old bees to care for the brood, and to act as guards at the very small entrance. In three weeks they were shaken again with the young queen that they had raised; so, instead of three unhealthy colonies we now have four healthy ones. The old combs were melted up into wax. As a precaution against robbers the work was done late in the evening, and the combs were melted after dark. The old hives were saturated with gasoline and set on fire. The gasoline soon burned off and left the hives clean and ready for use. The frames were burned.

Kansas City, Mo., Oct. 17.

A. T. RODMAN.

An A B C Scholar's Rapid Increase; Can we Have Too Much Shade for Bees?

I have been a subscriber to GLEANINGS since I started keeping bees, which was with one hive. I have since increased to 200 colonies, and this year we had over twelve tons of honey.

While I am much indebted to GLEANINGS and the A B C of Bee Culture for inspiration and knowledge, I have not seen enough said about shade for bees. While I am about to start an outyard in a young forest in a dense shade, will you kindly tell me if the shade would be good for the bees?

Beeton, Ont., Oct. 4.

CHARLES E. ARNOLD.

[The place described would be, in my opinion, too shady. Bees will not build up in spring, nor fly out as early in the morning, nor as late at night, where there is a large amount of shade. Experience demonstrated over and over again that an excessive amount of shade is detrimental. But a very moderate amount, or, to speak more exactly, shade that will protect the hives from nine to ten o'clock in the morning to two or three o'clock in the afternoon, is a benefit. If this shade consists of trees or grapevines the leaves will fall so that the colonies will be out in the open in the early spring and late fall, when they need all the sun they can get.]

The location that you describe, however, would be most excellent from the standpoint of windbreaks. For good results in outdoor wintering, forest-trees afford the best kind of windbreak.—Ed.]

Reconstruction of the Canterbury Beekeepers' Association

Readers in America and elsewhere who are interested in the doings of New Zealand beekeepers will remember that a conference of beekeepers of the Dominion was held last June, when a constitution was adopted under the name of the National Beekeepers' Association. This is framed somewhat on the lines of the American Association of the same name, and is designed to include all the beekeepers of New Zealand. After the delegates returned and had presented their report the situation was fully discussed; and the Canterbury Association, which had been carrying on the work under a federation of already established associations decided to remain as an independent body, and to push forward its

own policy. This having been decided on, a number of meetings were held, and an alteration has been made in the rules which now provide for a slightly increased membership fee, and provision has been made for objects which were impossible of attainment under the old rules. The action of the Canterbury Beekeepers' Association has been adversely criticised by one newspaper; but from accounts at hand at least some of the other associations are likely to follow suit. The Canterbury Beekeepers' Association will now push forward the export trade in honey which was commenced in a small way last season. The government will shortly issue regulations dealing with the subject, and a committee of members will see that these regulations are complied with. Meetings will be held quarterly, and it is intended to have a question-box on the table where inquiries can be put. These will be discussed, and answers supplied, which will help beginners (and advanced students) out of any difficulties they meet with.

Since the inauguration of the export trade, there has been a large increase in membership, showing that the Association's efforts are appreciated. The prospects for the coming season at present are good. Spring is earlier than usual, and weather warm. The winter has been rather dry, and there has been considerable frost. Fairly good rains fell during the latter part of the winter; and if we do not have a cold spell, such as we had last year during and after fruit-bloom, there should be a good crop. Bees are building up rapidly in many parts, and beekeepers are getting busy.

Christchurch, N. Z., Sept. 9. E. G. WARD.

[The winter in New Zealand is at the same time of the year as our summer.—ED.]

Bees Successfully Wintered in a Cold Cellar

Last winter my cellar was cold because I did not finish it until the ground was partly frozen. I put my bees (five normal colonies, one weak colony, and two very weak nuclei) in the cellar about December 5. A few days later I went to the cellar and found that the moisture from the colonies had frozen on the bottom-boards in front of the hives. I put up another door to make a dead-air space. This did not help matters much.

A short time after, we had a few days of warm weather, during which I opened the outer door in the morning and closed it in the evening. In this way the cellar was warmed so the moisture did not freeze except on cold days. I watched the bees for signs of bad wintering, but found none until early spring, when they began to roar during a few days of warm weather. The two nuclei died before spring; but the rest came out strong. One colony in an eight-frame hive covered seven frames.

Hurley, S. D., Oct. 6. MENHOLT CHRISTENSEN.

2300 Lbs. of Comb Honey and 70 Colonies of Bees all from One Runaway Swarm in Four Years

We are fast driving the saloons from Southern California, there being but four towns in our county that are still wet—the city of Los Angeles, Santa Monica, Redondo, and Venice. Our board of supervisors have just passed a strict law to stop the liquor men from sending their wares in to dry districts. One town, Glendale, has never had a saloon, and I hope it never will.

I started in the bee business four years ago with one swarm that I caught. This spring I had thirty, and took 2300 pounds of comb and extracted honey, and have seventy colonies at this time. It has been a poor year in most places in this country.

I used to take your paper when I was a boy in Pennsylvania, at the time you were interested in Helen Keller. I was a great admirer of Rambler

in those days, and also of the articles written by Ernest R. Root on his bicycle trips. I think it was in New York.

I sent to Washington for seed of the dasheen, and received word last week that they were out for this year, but would put me down on the "waiting list."

RAISIN GRAPES AND WINE GRAPES.

I saw in the Oct. 1st GLEANINGS an article asking the question why the California grape-growers do not make the grapes into raisins instead of wine. The wine grapes will not make raisins, as they are too juicy. The varieties that make raisins are the muscatel, or muscat malagas and Thompson's Seedless, or Sultana, all green grapes.

SULPHUR DUST FOR BEE PARALYSIS.

I had three colonies that showed bee paralysis last spring. I tried an experiment. I was sulphuring my grapevines with a power machine. I put the spray at the entrance of the hive, and filled them full of the sulphur dust, and in a week they showed no signs of the disease.

Burbank, Cal., Oct. 22.

W. H. REYNOLDS.

Bees in Hot Weather do not Tarry Long when Drinking Water

With the mercury 104 in the shade, and not a particle of air stirring at 1 o'clock P. M., I timed the bees at the water-tub. In making 20 tests, no bee was over 45 seconds, and none less than 35 seconds, taking its supply of water, and the next day I made the same test with the same record. I was surprised that they did not vary more in time they were on the rim of the cement tub. There were from 100 to 175 bees on the rim all the time.

Bradshaw, Neb.

C. B. PALMER.

The Bees Varnish the Inside of the Hive so that the Wood is not Porous

If some one will show me a hive that has been occupied by bees any reasonable length of time that is not thoroughly varnished on the inside, making it absolutely air-tight so far as the pores of the wood are concerned, then I will feel as if it were a mistake to paint and close the pores on the outside. You men who oppose painting hives "because it closes the pores of the wood," examine the inside of your old hives that have recently been occupied.

Rocky Ford, Colo., Oct. 21. A. S. PARSON.

[Hey, Dr. Miller, what sort of answer have you for this argument?—ED.]

Shrinkage in Weight of Comb Honey After it is Removed from the Hive

Is there any shrinkage in the weight of section honey, say in three months' time, if it is removed from the hive right after the main honey-flow?

Wadsworth, Ohio.

JACOB L. LIND.

[There is some shrinkage in the weight of comb honey, say in three months' time, after it is removed from the hive. The amount of shrinkage depends upon the atmosphere in the room where the honey is stored, also upon the thickness of the honey when it is removed from the hive. However, it is quite common to find a shrinkage of about three per cent in the weight of the honey—approximately half an ounce per pound.—ED.]

Some Colonies Affected with American Foul Brood

During my work as bee-inspector I have had quite a little experience with swarms from colonies having American foul brood. This seems to be against the theory of some of our writers, and I should like to know whether such swarms are the usual thing, or quite rare.

Salem, Iowa.

J. W. STINE, Deputy.

Our Homes

A. I. Root

Whom the Lord loveth he chasteneth, and scourgeth every son whom he receiveth.—HEB. 12:6.

TAKING CARE OF THESE BODIES OF OURS.

Just now in this present age of progress the whole wide world, especially the younger portion, is studying automobiles. Even in farming communities (at least in and around our Medina home), there are automobiles to get around in the world rather than depend on horses as we did a few years ago. And most of these farming friends have learned that automobile doctors are expensive as well as the old-fashioned kind of doctors. Automobile owners are studying up the mechanism as they never studied any thing before; and they are learning to make their own repairs instead of going to the garage. It has been a wonder to me how the boys get hold of the intricate mechanism of an automobile; and even older ones have learned by experience the importance of using an automobile—I was going to say in a *humane* way, so as to avoid the expense of running, as much as possible. Now, this is a grand undertaking. I do not know of any branch of education that is as important just now as something along this line, unless indeed it is an education that concerns these *bodies* of ours—these God-given bodies—in order to keep the human frame up to its best. The whole wide world is making great progress just now along this line.

Now, this Home paper may be objected to because both Terry and I are going to talk *exceedingly plain*; but, notwithstanding, I believe this talk will be of more help to humanity—especially *suffering* humanity—than any thing else I have talked about for a long while.

On page 657, Sept. 15, I said, "If my good friend and neighbor should get sick, down would go his teachings, or at least they would go down a little way." The above was dictated somewhat in pleasantry; and little did I dream while I was speaking that my good friend Terry was seriously ill, with a doctor and a trained nurse. While he was unable to write, the good wife gave me full particulars in regard to the matter; and already I for one began to see God's loving hand in this affliction; and instead of his teachings going *down*, I think the sad occurrence will be the means of making his teachings even *more* valuable.

With this preface I wish to give you the following, which I clip from the *Practical Farmer*; and by the way, friends, if you are not already taking the *Practical Farmer*

I think it will pay you to subscribe for it for Terry's teachings alone. No other writer, so far as I can learn, has ever undertaken to give the world, without a cent of pay, such sensible exhortations on caring for these bodies of ours, exactly as we are caring for automobiles nowadays, that they may run *thousands of miles* without a cent for repair. Here is the clipping:

ATTENDING THOROUGHLY TO NATURE'S CALLS.

This is an important matter which has never been discussed in detail in these columns. And still many thousands of people suffer more or less from lack of attention to as simple a thing as this, and do not know it is because they are violating one of nature's fixed laws. The points we wish to bring out strongly to-day are attending promptly and thoroughly to the slightest call of nature for the evacuation of the bladder or bowels. You may think this too simple a matter to pay any attention to. But let us explain how neglect works. In the rush and haste which is so common a man may fail to discharge quite all of the urine from the bladder. This urine contains poisons, usually more than it should have. Any left over in the warm bladder begins to decay. This may, in the course of time, bring on more or less irritation, and in the end perhaps inflammation, swelling of prostate gland at neck of bladder, and so on. Then in extreme cases life may be worse than death at times. Getting a little chilled, overeating, improper food, overworking, even worrying, may start up trouble on short notice. What we call a cold may bring on an inflammation in the bladder which will cause serious illness. You see nature chooses this weak point, unless there is a still weaker one, to build a bonfire to burn up surplus waste. This trouble is quite common among elderly men. The writer has known a number to whom life was almost unbearable. Some of them let the surgeon cut out part of what nature put there, and in every case the end came within a year or two of agony following the operation. The general impression is that old men can not avoid this trouble. The truth is that improper ways of living, such as are mentioned above, bring on the terrible ill. It can be relieved after one becomes badly off, so he can get along comfortably, by living as we teach. I have full faith that it can be cured; if not, it will always remain a weak point, and God help the poor man who, by some little carelessness, lets the inflammation get started again.

ATTENDING PROMPTLY TO NATURE'S CALLS.

Fifteen years ago the writer got up early and rode in an open wagon 12 miles one frosty morning. He was very cold, and should have gone straight to the water-closet when he landed at the hotel. Instead, he stopped in the office before an open fire to warm a little. And then in came a party of ladies to show us about town. Had he dreamed of the terrible trouble to follow he would have excused himself for a few minutes. But you know this was not a pleasant thing to do, with the closet door in plain sight and a sign on it. So he went with the ladies and suffered severely before he got back to the hotel. That evening he was taken dreadfully sick with what afterward proved to be inflammation of the bladder. He picked up enough in a few days to get home, and then went down flat again and suffered death almost daily. This was the beginning of the serious troubles in this line which the writer of these columns has had. Doctors proved powerless to cure. With no end of grit he set about learning to live so he could

get along comfortably. After some years he got so he felt well. He did not have to get up once in a night as a rule. The bladder become normal, and would hold full without discomfort. But, dear friends, it seems there was still that terrible danger spot at the outlet of the bladder ready almost to kill him if any thing went wrong. For years nothing did go wrong. But over four weeks ago he did two weeks' work in one by writing articles and answering many letters, trying to get ahead a little. Then down he went flat again, and suffered beyond words to express until he longed for death. He had to try to urinate every 30 minutes, and the nights were awful. But a good doctor who does not drug people, and a first-class trained nurse from the city, pulled him through. He lost his grip entirely, and had to let others manage for a time. This story of the starting of the trouble has never been told to any one before. It would not be told now, except as a warning to others. It is an extreme case; but it is risky to retain urine in the bladder when nature calls for it to be discharged. I have not given up by any means trying to make that danger spot sound; but, oh how much better never to have brought it there!

HOW TO KEEP BOWELS IN PERFECT ORDER.

It is important also that one attend to the evacuation of the bowels every time as soon as possible after nature gives a hint in this line. To neglect nature's call helps to bring on constipation and re-absorption of filth. It is well to have regular times, and never pass them by. Nature will soon drop into line. When one first gets up in the morning, and after meals are good times. Twice a day is none too much for best results; and the excrement should be quite thin so as to come out easily without straining. You see the colon, where waste is stored waiting to come out, is lined with rough folds. Excrement that is quite thin will pass out steadily and naturally. If it does not do this there will in time be some trouble, resulting the same as when one leaves a little of urine in the bladder. It is a simple matter to live so as to make waste pass out loosely and naturally. Eat all of the wheat, corn, etc., not bolted products from which the cellulose has been extracted. Eat fruit freely, fresh when possible. The vegetables are good also. Uncooked grain, like rolled wheat eaten dry, is better for this purpose than cooked. Drink freely of pure soft water. This advice comes after ten years of entire success keeping bowels loose and all right from one who twenty years ago never had a movement without first injecting water. If you have no trouble in this line be thankful. If you do have trouble you can never have perfect health until you overcome it by natural means.

HOW TO PREVENT A COMMON TROUBLE AMONG CHILDREN.

We have had a number of letters asking for a remedy for bed-wetting and wetting clothes in day time. We have been told of doctors giving medicine for kidneys in such a case. But this is all a mistake. The kidneys are all right, and so is the bladder, as a rule. The cause of the trouble is much more simple. A nurse trained in a hospital in Toronto, Can., was taking care of a sick mother. A six-year-old daughter would come in crying from play with her pantlets wet, and she wet the bed also. The mother said to the nurse: "I would give you almost any thing if you could cure my child of this trouble." The nurse said: "I will, if you and the father will back me right up for a few days." They agreed positively to do this. When the little girl came in wet in the afternoon the nurse bathed her and put her to bed without any supper, and told her she would get the same punishment every time she wet her clothes. You see, she was so busy playing that she would not stop until the bladder refused to hold more, and emptied itself. She had never been taught or trained in this line. That was simply all. She called her father, but he was as firm as the nurse. Then more attention was paid to diet, to have

it simple, plain, and wholesome. And very little water, milk, or other drink was allowed at supper time. She was encouraged to drink early in the day. In less than two weeks all wetting of clothes and bed stopped. The child showed the result of training by an expert who knew. Much drinking near the close of the day, and an excess of poisons in urine from improper food, hasty eating, etc., make the trouble. The poisons mentioned irritate the bladder of the little one, and she is sleeping too soundly to awaken, and the result is a wet bed. We have waited to answer the questions in this line until we had positive proof from some one we could depend on that the trouble could be stopped in a short time. But let us beg of you not to give the little ones any of the drug "cures" that are advertised. Simply remove the causes of the trouble.

The above almost made me smile to think how plainly Terry has outlined a physical trouble that has followed *me* through life. When I was but a baby, after a severe sickness that nearly took me away this trouble followed me. Yes, I groaned and wept over it until I was a dozen years old. It seemed almost *imperative* that I should be in the open air, and this, perhaps, explains somewhat my love for gardening, chickens, bees, etc. In traveling I have learned by sad experience the importance of hunting up water-closets; and when I go to a convention my first move is to go to the janitor and find out about water-closets. If they are locked up I find where the key is kept. When I am invited to attend some meeting where there are to be two or more addresses without a recess I am often obliged to stay away on that account. Here is another point: You know I have been vehement about the matter of ventilation (as has also Mrs. Root) in a crowded church or hall. I have been over to friend Terry's since his sickness, and was pleased to see him outdoors with an umbrella, in a rain. I asked him a lot of questions.

"Mr. Terry, when did you have the first intimation that this trouble was coming on?"

"It was while I was in church."

"Was that church poorly ventilated?"

"It was."

There you have it, friends. This trouble of mine is always worse when I am obliged to remain in a room full of people without any precaution being taken to admit *fresh* air. You may suggest I might get up and go out. Yes, so I could; or, rather, I could a few years ago. Since my deafness has come on, however, I am obliged to sit on a front seat close to the speaker; and I think many of you can understand how awkward it would appear for me to get up and go out, especially if I had just given a hearty "amen" to some good point the pastor made in his sermon. I am glad to note that of late the sermons here and down in Florida are getting to be short and to the point;

and I do not believe it is well or profitable to have two or more important addresses without some sort of recess between them. Terry alludes to the care of our diet; and this opens the way for me to repeat that I have never in my life found any thing so beneficial for such troubles as *grapefruit*. Here in the North it would be rather expensive; but in our Florida home we have always been able to keep a supply at so small an expense as to be scarcely worth mentioning. May God be praised for such a delicious health-giving medicine as grapefruit. Sitting down at a desk reading and answering letters for hours at a time greatly aggravates the trouble, and that is what brought back once more friend Terry's trouble of years ago. I think he is now pretty well past the difficulty, and I hope his prospects are *still* good that he may live to be a hundred years old. But the matter rests considerably on the shoulders of his good friends scattered far and wide; and if you want to see him keep on with his teachings for years to come, let me beg of you to be careful about writing him long letters; and whatever you do, inclose an addressed postal card as I desired in my case. I talked with him about it. He said *my* request was all right; but as much that he has to say to his friends would hardly be appropriate on a postal, he urges an *addressed* stamped envelope.

In conclusion I begin to think that Terry's painful experience during the past few days has really been in one sense providential. It enabled him to form a close acquaintance with one of the best doctors and one of the best trained nurses. I know something about the good woman, because she was employed, years ago, as I understand it, by a member of our family.

One other thing I said to Mr. Terry:

"Friend Terry, are you having outdoor exercise every day of your life, enough to start perspiration?"

"Mr. Root, I have not had the time. In regard to outdoor air, we have it already. It is right here in this room, as I have explained repeatedly."

"Yes, my friend, this air *is* all right. It is delightful. I had not noticed it particularly till just now; but, notwithstanding, I feel quite sure it is not equal to being outdoors and hard at work at something till the sweat starts."

I confess it was a little funny, the idea for just a moment, of *Terry* being a patient and your humble servant the doctor; but I think my good friend agrees with me, even if he did not promise to take "my prescription."

Last, but by no means least, besides the

exercise in the open air, I said something like this:

"My good friend, do you ever take a nap during the middle of the day?"

"I do not need to, Mr. Root. I sleep well and soundly all night; and I do not think that getting into the habit of sleeping in the day time would be any advantage."

I do not recall what I said in reply to this matter, but as I deem it of great importance to elderly people I want to go over again what I have been urging repeatedly.

It was about 35 years ago that Dr. Salisbury warned me against sitting down to dinner or any other meal when *tired out*. He said my digestive apparatus could not do its work, and do it well, no matter how well the food was prepared, unless I was well rested up before eating. He declared it would add *ten years* to my life if I would leave my work (then mostly at the desk), go home, and get some sleep. Ten or fifteen minutes' sleep, he said, was better than none at all. Well, it has added certainly ten years to my life, and may be twenty. You remember how vehemently I have urged it, especially for elderly people.

Some of our good hard-working mothers have intimated that it was a huge joke to ask the average *mother* of a family to go and lie down during the very busiest part of the day, just before dinnertime. I think I realize something of what a task it would be; but could it not be accomplished easier than to have the tired mother go off to a sanitarium to be doctored, or possibly off into her eternal resting-place before her time? Well, during the past year or two I have found several times that, after this brief nap before dinner, I was not even yet in first-class trim. When I have the use of all my faculties and enthusiasm besides (as I have just now), I can do a lot of work in a little while, and do it well; but, as I have just said, for the past year or two a good many times a brief nap and a dinner afterward did not quite get me in "fighting trim." My "storage battery," if you will excuse the illustration, was not even yet well charged; and half an hour in the garden, so as to start perspiration, did not bring the vim for my work that I usually have. What was the trouble? I told Mrs. Root that I was forced to the conclusion that I had not had *sleep enough*. I often sit up to read as late as ten o'clock, and am often up by half-past four in the morning.

Now, what I am going to say is for elderly people. The younger ones, full of life and vim, may call it nonsense; but after I went back to my comfortable resting-place and slept an hour, sometimes even more than that, I was ready to swing my hat and

say, "Come on, boys; bring on the work you want done, no matter what kind, and no matter how unpleasant."

The above is simply treating these complicated bodies of ours—yes, bodies and brains—just as you would treat an automobile. Sometimes it bothers even the experts to tell just *what* the matter is. They try one thing and then another, and so on. But if they *persevere* the inanimate machine finally goes off at its full power. Now, be careful not to mistake downright laziness for a break or a weak spot in the machinery. If laziness, hoeing in the garden will generally cure it. Ask God to guide you; and when he answers your prayer, and gives you the needed strength and energy, "get busy" with something that will *help* weak and suffering humanity.

ARE OUR BANKERS AS A RULE PROFESSING CHRISTIANS?

Mr. Root:—I note what you said about bankers attending church. *The Adult Bible-class Monthly*, published by the David C. Cook Pub. Co., says that bankers are the best Sunday-school superintendents, and that very many superintendents or a majority of them, I think, are bankers. That looks as if it were quite fashionable for bankers to undertake church work.

I am glad to say that I am a "chapter-a-day" Bible-reader. I have read from the beginning to the book of Judges. A class of us began last December to read the Bible through.

Andover, Ohio, Aug. 4. CLINTON D. HATTON.

Thank you, my good friend, for correcting me. I am rejoiced to know that some of our bankers are professing Christians. God knows they should be professing Christians, not only on Sunday, but every day in the week; and who can tell how much good they might do if they applied the Christ-like spirit to every business transaction?

SHOES FOR HOT CLIMATES; SPANISH ALPARGATAS, ETC.

I received June 15th *GLEANINGS*, and I saw on page 18 something about Spanish alpargatas. Here they are generally used by the laborers, and lower classes also, 12 months in the year, as well as children of both sexes, for going to school; but they are not rope-soled, but leather-soled. They have been imported from Caracas for 15 years, and gradually became generally used. As in Venezuela and other South American republics, they are generally used by the lower classes. The price is from 20 up to 48 cts., according to size.

Rope-soled slippers with cloth uppers are used indoors by the well-to-do, and cost from 16 to 20 cts.; but they do not stand the wear and tear of the leather-soled ones. I can not tell you where they are imported from. The real alpargatas, leather-soled, are both imported from Caracas and manufactured locally in ever increasing numbers. They are usually worn without socks or stockings, although some do it so. There is also the rope-soled slipper for the Chinese, round at the end, to be used

indoors. Their price is 15 cts. They are straw right around at 15 cts. I am sending you a sample of each for your inspection and use. The rope-soled is 18 cts.; the alpargatas, 40 cts. Alpargatas are imported from Caracas; rope-soled from Germany, and the straw ones from France, as they informed me at the store. C. M. CARMONA.

San Rafael, Trinidad, B. W. I., July 15.

The good friend who writes the above has kindly sent us three pairs of these cheap shoes as samples. The Chinese slippers made all of cloth, for 15 cts., would answer very nicely indoors. Moccasins with rope soles would, no doubt, be all right for wearing outdoors in dry weather. I think they would be especially handy for a tramp through the woods, keep the feet cool, and yet give sufficient protection. The alpargatas at 40 cts. have a good substantial leather sole with cloth uppers. I am glad to say that I find my strength holds out very much better, in hot weather especially, when I wear a shoe made of cloth or of cloth uppers. Abundant ventilation for the feet, and a sort of ventilation that can not be secured with leather uppers, is, I think, exceedingly important. And, by the way, it is important, as I said before, that the whole body be well ventilated, especially in hot weather, or in the hot sun. If you do not keep this in mind, and look out for it, you will suffer more or less unless you are built after a different fashion from what I am.

Many thanks to the good friend who has helped to keep me posted in this matter.

SHOES FROM ALL OVER THE WORLD, AND SOMETHING MORE ABOUT THE CARE OF THE FEET.

Just a word more about the shoes. After having samples sent me from different nations I have found that the women's cloth shoes we find in our shoestores—at least here in the North—are the best for my special wants. I have worn one pair almost constantly since I came back from Florida in the spring. I have not suffered a minute from hot and burning feet as I did when I wore leather shoes, and my corns have not been touched by knife or corn-plaster. They are all going away of their own accord. Of course, these cloth shoes have leather soles. They cost me \$1.25 up to \$1.40 here at our shoestores. I prefer them to the various kinds of shoes used in hot climates because I can work in the garden with them and not get pebbles and sand in my shoes. Most of the shoes mentioned above permit dirt and gravel to get in between the shoes and stockings, and I am too nervous to get along with even the smallest pebble in my shoe. These cloth shoes tie up close around the ankle; and

unless you get in very deep sand there is no need of pulling them off to clean out your shoes.

One more very important thing: My feet as well as my whole body are thoroughly washed every morning of my life; and I tell you it is worth a whole lot to be entirely emancipated from nerve-racking corns and sore feet. Mrs. Root objects to these women's cloth shoes because it looks effeminate; but in view of the relief I have had I can afford to be "effeminate," and I can afford \$1.40 for a neat pair of shoes every three months if need be.

I forgot to mention that the Chinese cloth shoe at 15 cents is a splendid thing to wear around evenings indoors. There is a cloth cushion under the heel, and this fifteen-cent shoe might do a lot of service if worn only indoors.

FAKE WEATHER PROPHETS, ETC.

A few days ago I was asked if science or any thing else could tell us whether the coming winter is going to be severe or mild. I said at once that nobody on the face of the earth could tell any thing about what the coming *winter* will be. It is true that every little while we see something in the papers to the effect that the Weather Bureau says we are going to have a "hard winter," etc. The Weather Bureau has *never* said any thing of the kind, and has for years been contradicting such reports. Just lately the Weather Bureau has been at times able to come pretty close to what the weather *might* be in certain localities for a week ahead—never more than that. Let us consider the matter a little. With the automobiles we have now, and swift methods of travel, anybody with his eyes open can see that a large part of the weather is a *local* matter. A severe thunderstorm comes up, and the automobiles slip on the clay roads so they can not travel. Five miles away it is dry dust. A big wind does a lot of damage in one town, while twenty miles away (and even in the same town) there is little or no disturbance. Now think of the difficulty of putting in print, as the weather-quacks do, what the weather will be for months or even a whole year ahead! The way some unthinking people are misled is like this: A weather prophet predicts a cyclone at such a time, but he does not say where. He finds out that somewhere in the United States there *was* a cyclone at just about that time. He gets a photograph of it (which is not at all difficult nowadays), then places it before the readers of his publication and says, "Read what I said *would* happen. Now, here is what *did*

happen." If this forecaster had declared there would be a terrible windstorm on Lake Erie at such a time, or say in Northern Ohio and a part of Michigan, it would be a little more definite.

I have made two clippings from the *Scientific American* for Nov. 1, as follows:

A weather prophet's confidence in himself is always in inverse proportion to his knowledge of the laws of the atmosphere. The intelligent meteorologist is the most modest of forecasters, for he realizes more keenly than any one else the endless complexity of the phenomena with which he has to deal, and the extent to which his conclusions are likely to be vitiated by unknown factors in the problem.

By far the most numerous group of prognosticators ascribe supreme influence in meteorological matters to the moon. Another group stakes its reputation on sun spots. Some years ago the hypothetical planet Vulcan was a favorite with these seers. Others exploit that perennial refuge of ignorance, electricity.

A good deal was said years ago about animals having an instinct that warns them of a coming winter as to whether it will be exceedingly severe or otherwise. I hardly need take space to go over here about the squirrels laying up more nuts when a cold winter is ahead, the chickens putting on more feathers, etc. No doubt these things do happen. The squirrels gather more nuts because there are more to be gathered. The chickens put on a heavier coat of feathers because their owner has furnished them more and better material to make bones and feathers than they ever had before, and so with all these other things. Our United States Weather Bureau has made careful observations, and kept accurate tables for years; and just as soon as any real truth comes to light about the animals, sun spots, or the influence of the moon or planets, our great eager public will quickly be apprised of the fact.

FARMING ON PAPER; THE GOOD TIME COMING.

The auto on the farm arose before the dawn at four. It milked the cows and washed the clothes and finished every chore. Then forth it went into the field just at the break of day. It reaped and thrashed the golden yield and hauled it all away. It plowed the field that afternoon, and when the job was through it hummed a pleasant little tune and churned the butter too, and pumped the water for the stock, and ground a crib of corn, and hauled the baby round the block to still its cries forlorn. Thus ran the busy hours away by many a labor blest, and yet, when fell the twilight gray, that auto had no rest. For while the farmer, peaceful-eyed, read by the tungsten's glow, the patient auto stood outside and ran the dynamo.—*Orchard and Farm*, San Francisco.

The above is tiptop, although it does not tell who bossed that farm auto from daylight till bedtime. As California is putting her good women in the foreground, we presume it is the farmer's wife or daughter who keeps an eye on the efficiency of the dynamo while the farmer reads his paper.

High-pressure Gardening

DASHEENS IN OHIO; HARVESTING THE CROP.

On page 782 of our last issue I mentioned how the dasheens recovered from the frost. Well, they kept on growing—that is, when it was not too cold—until Oct. 20, when we had a cold rain that turned to snow with piercing southwest winds; but the dasheens did not seem to mind it at all. They seemed to be even hardier than tomatoes, lima beans, etc. Finally, on the night of the 21st the weather cleared off and we had not only a frost but a *freeze*.^{*} But, thanks to the thermometer and barometer, I knew what was coming, and on the *afternoon* of the 21st I harvested my dasheens. It was a rather cold and muddy job. If grown in sandy soil there would not be much trouble in shaking off the dirt; but in a clay soil, especially during a wet and muddy time, it is quite a task. I did not find out the best way until I had experimented a little. As the central corm has a cluster of tubers all around it, the great mass of hairlike roots holds the soil quite tenaciously. You will need a good stout spade—a curved ditching-spade, for instance, with a long blade. Get this under the whole trunk, then raise it up (if you are strong enough), and let it drop on the hard ground, if it is not too muddy to find such a place. Now take your sharp spade and trim off the roots as close as you can to the tubers without cutting them. Tip the clump over and trim off the bottom in the same way. Now take each tuber by the stalk and snap it off from the central corm. Strike it lightly against your spade, and then most of the dirt will rattle off. Throw them into empty potato-crates, and carry them in, especially if frost threatens.

Now, as it was somewhat of a question how much of these green tops are fit to cook, I trimmed off one lot, picking off the larger leaves, leaving the most of the center leaf stalk. Then I cut off the top clear down to the tuber. I told Mrs. Root that, for an experiment, I had included some pretty large leaf-stalks that might prove to be too old; but, to my happy surprise, the "stew" was delicious—every bit of it. The directions in the bulletin from the Department of Agriculture are to wash the shoots—in fact, the whole plant—in water to which a teaspoonful of sal-soda has been added to every quart. Pour this off, and

boil the shoots for ten or fifteen minutes in clear water. Pour off this water also, then stew about five minutes, add butter and milk, and serve as you would oysters, but Ernest and Huber think they resemble more nearly real nice *mushrooms*. The tubers surrounding the central corm can be cooked in the same way, or they may be dried and baked, and the same with the big central corm. But so far we have not found them—that is, the greater part of them—equal to the tubers, say about the size of a hen's egg, that grow around the big ones. I have, I think, demonstrated that the tender shoots above ground are worth the care and cultivation, to say nothing about the tubers; and I am hoping that, when the tubers are thoroughly dry, they will be as rich and luscious as those that grow further south. This remains to be proven, of course. For experiment I left one of the largest plants out in the freeze. The frost killed it down to the ground; but I hardly think it did any damage to the tubers where they were pretty well under the surface.

Later.—To-day is October 25, and we have been having a dasheen stew made of the shoots or tops, as described above, at almost every meal, and I think I shall like them the year round as well as Irish potatoes. We have passed them around the neighborhood, and they all seemed to be pleased with them. The little plants mentioned on page 697 were, at the time of the frost, out of the ground perhaps two inches. They were protected simply with burlap grain-sacks which were taken off as soon as the ground was well thawed out, and seem to be unharmed. They are, in fact, to-day making a new growth since the frost. From this I gather that it is a very simple matter to protect them with grain-sacks or something similar while the plants are quite small.

THE NEW APPLE, THE OLMSTED SWEET.

Friend Root:—I suppose you will not object to my addressing you as "friend," for I am a beekeeper, and you can't deny being a friend to beekeepers. I am also taking the liberty of sending you a parcel-post sample of a variety of apple that I think may be new to you, knowing that you are usually interested in new things. They were originated by my grandfather several years ago, and I do not know whether they have ever been handled by any nursery company or not. They are known hereabouts as "Olmsted Sweets." I am curious to know whether they are new to you, and your opinion as to their possibilities as a marketable apple. They do not make good sauce, but are used considerably for preserves, and are a favorite baking apple with a good many people here. The trees are heavy and regular bearers, and there are a great many of them scatter-

^{*} Most of our readers are aware that a severe blizzard on the 21st did much damage all over the North; and I notice by the papers that they got a touch of it clear down as far as Northern Florida. This blizzard, accompanied with unusual frost and freezing, as early as Oct. 21, is unusual. Some of the papers stated that no such severe weather had been known on that day for 25 years past.

ed about the orchards here. The apples are ready to pick from Sept. 20 to the first week in October.

Monona, Iowa, Oct. 14. D. N. OLMSTED.

The apples came to 'hand in tolerable order, except that one end of the paper box was broken, and one apple mashed. I tasted this one, but it was not ripe enough to judge of the quality. The apples are very large, beautifully streaked, and very handsome. Except the mashed one they are as hard as rocks, so I infer they are late winter apples. I sent a couple of them to the Horticulturist of our experiment station. Below is his reply:

Dear Mr. Root:—The apples which were sent you by Mr. D. N. Olmsted, and forwarded to me, came this morning. They are quite large, greenish-yellow, nearly covered with red, resembling Wolf River in outward appearance. The flesh is tender, sweet, and of excellent flavor. For eating raw, most people would regard this as very choice. The core is not large, and for baking it must be excellent. For making apple-butter I should think it would be unsurpassed.

For the family orchard it seems to me that we have nothing better of the same season of ripening. I do not recognize the variety as having been described in the fruit-books. I should think that Mr. Root could eat all he wanted of this apple, even if it was just before going to bed.

W. J. GREEN, Horticulturist.

Wooster, Ohio, Oct. 25.

It occurs to me that this apple would be a splendid one for the restaurant that advertises baked apples and cream. I have many times paid 15 cents for a big baked apple and a little pitcher of cream, and I felt that I had got my money's worth too. Very likely friend Olmsted will be able to furnish grafts in the spring.

"THOU SHALT LOVE THY NEIGHBOR AS THYSELF."

Brother Root, you have done your neighbor Rood an injustice by taking a vessel for milk that would hold more than a pint. You tell in a late issue of GLEANINGS of buying milk from him, "and a very generous pint it is." Now, by all means when you go back to Florida get a pint milk-bottle; and when you buy a pint of milk your neighbor will not be obliged to put in more than you are buying. My wife sells milk, and many times I notice she will give a pint and a half for a pint because the people bring all sorts of vessels to get the milk, which I think is an injustice. If we expect more from a party than we are paying for, we are not giving him a square deal.

I keep a few bees, and from 100 to 300 chickens—a cow, a horse, and I have several acres of land with several hundred fruit-trees planted thereon. I have a general store in a small way, and am operating a coal-mine employing 15 to 40 men. I come in contact with many kinds of men. Nearly all are expecting the best of the bargain, which, you will agree, is very wrong.

THOMAS HARRIS.

New Florence, Pa., July 26.

My good brother, I stand corrected; and hereafter when I go over to neighbor Rood's for milk I will carry something that holds just a pint. It is true, however, that neighbors who are on very friendly terms often have a fashion of giving liberal measure.

Just of late, to correct the very thing you are talking about, our State of Ohio has passed a law requiring grocers to sell potatoes, fruit, etc., by the pound instead of by the quart or peck. This cuts out the scant measure and the other extreme of heaping up the quart box or half-peck. With eggs we pay for a dozen and get exactly a dozen, and I am sure it will be better all around to be more careful and exact in these things. A good friend who is a market gardener in Florida sells stuff without a box, measure, or scales. He said he knew he was giving me more than half a peck of potatoes, but he was too busy to provide himself with scales and measures. When I told him I feared he was not getting pay for his time and trouble he admitted that it did not pay. He said he had the stuff, and must get rid of it. I am afraid it is true as you state it, that nearly all the world are "expecting the best end of the bargain." Now, may God help us (you and me) to be an exception to this prevailing fashion.

HOECAKE—HOW TO MAKE IT, ETC.

I wish to thank the good friends for the number of recipes for making hoecake, johnnycake, corn bread, corn pone, etc. While many of them are quite elaborate, using eggs, milk, etc., my impression is that the old-fashioned genuine hoecake is quite simple, and I should not wonder if it were just as good, and perhaps more wholesome. From among them I select the following, which I think might be properly called genuine hoecake. You see there is not much fuss nor bother about it.

I noticed in GLEANINGS that you wished a recipe for hoecake. The following is one. Put one quart of white corn meal into a bowl. Add one teaspoonful of salt. Add to it sufficient boiling water to moisten, stirring all the time to make a stiff batter. Moisten the hands in cold water. Take a tablespoonful of the batter in your hand and press it into a thin round cake.

If you have an open fire, have before it an oak plank well heated. Place the cakes against the board in front of the fire. Bake on one side, and turn over and bake on the other until thoroughly done—about 45 minutes. These can also be baked on a griddle on top of the fire. When done, pull apart, butter, and send to the table hot.

CHAUNCEY D. STAHL.

Little Falls, N. Y., July 11.

APPLES AND MUSHROOMS.

Three judges of the court of appeals, who were to sit in Medina, Ohio, yesterday, found no cases awaiting them. So they hunted apples and mushrooms instead. They returned to Cleveland late in the afternoon, tired out with the tramp they had taken.

The above (from the Cleveland Plain Dealer) is pretty fair for Medina Co., but not quite equal to the way they dispense with courts and lawsuits in Kansas.

Poultry Department

THE POULTRY BUSINESS—A COMMON-SENSE
BIRDSEYE VIEW FROM THE DEPARTMENT
OF AGRICULTURE.

From a farmers' bulletin entitled "*The Agricultural Outlook*," under the head of "Meat Shortage," I clip the following:

Most of the poultry products of this country are produced on farms under conditions that render the cost of production nominal. Most of the food consists of waste grains, insects, etc., which cost nothing. Most of the labor required is done at times that would not otherwise be profitably employed, or by members of the household who would otherwise be earning nothing. The farm price of poultry products is largely fixed by this nominal cost of production. Under such conditions, it is only the exceptional individual who can make poultry profitable as a major enterprise. There is, therefore, no prospect of increase in products of this class in greater ratio than the increase in population.

Now, a great lot of you, or perhaps I should say a great lot of us, need to take note that it is "only the exceptional individual who can make poultry pay, as a major enterprise." If you can get great big prices for your chickens, that may make a difference; but by the "egg contest" now going on, people are beginning to decide that "handsome is that handsome does." If you can breed a strain of great egg-layers, and demonstrate that you have such birds, you can get good prices for them. But it must be the outcome of genuine, hard work. People are tired of being humbugged.

Below is something I have clipped from a periodical called *Profitable Poultry*. For a long time I have been worried in regard to this matter. Read it and see what you think about it.

There is one thing which the writer believes almost impossible to accomplish, and that is, to raise chickens that will win, both in a show room and in an egg-laying contest. Beauty or egg production must be sacrificed to a certain extent, in order to increase the standard of one or the other.

Right here is something more along this line, from the *Industrious Hen*. I clip it from an article in regard to the Sicilian Buttercups:

It is urged that they do not breed true to feather; and fanciers who think more of a feather than they do of an egg will think this is a serious objection. Right at this point is a chance for discussion. Shall we sacrifice laying qualities to fancy? In their native island, Buttercups are kept solely for eggs and meat, with no thought as to feather markings; so that, when rightly interpreted, the criticism that they do not breed true to color becomes really a tribute to their worth.

The above is true. A great many are disappointed to find very few of the Sicilian Buttercups having a dot on a yellow cream-colored background; and I feared the tendency was going to be to pick out these

handsome hens for breeders, with little or no attention to their egg-record. I say, give us eggs, first and foremost; and if the hens happen to be handsome, golden-spangled, etc., all right; but do not, I beg of you, make fancy feathers first and foremost.

POULTRY AND BEES BOTH, ETC.

A POWDER TO KILL LICE ON POULTRY.

Take 5 lbs. plaster Paris; $\frac{1}{2}$ pint crude carbolic acid; $1\frac{1}{2}$ pint of gasoline. Mix all together thoroughly, screen through fine wire cloth like window-screen; dry in the sun two hours, and store in a tight vessel till used. Be careful of fire.

A MACHINE TO DUST HENS WITHOUT CATCHING THEM; FOR LEGHORN SIZE.

Make a drum of reasonably stiff sheet iron 12 inches in diameter and 4 ft. long, and fit a round head or end in both ends, and cut a hole 6 x 8 inches in each, and fit a slide door of sheet iron over both holes in the ends. Bore a 5-16-inch hole in one of the wooden ends, and put a bolt from the inside to stick out for a crank; then bore a hole through a stick for a handle, and screw the burr on.

For the stand for the drum to revolve upon, make a box without top or bottom with two end boards in each end, 3 in. apart, 2 $\frac{1}{2}$ ft. long, 21 in. wide, and 10 or 11 in. high; then cut out of the center from the top of the four end boards a half-circle 12 $\frac{1}{2}$ in. long, and 6 in. deep; then adjust four rollers between each of the two end boards equally spaced. Where the half-circle is cut out, have the rollers stick above the boards so the drum will rest on the rollers. To use, adjust the opening in the drum in the end without the crank to an opening in the hen-house that the hens have been using to go through, and put a screen over the hole in the end where the crank is, so the hens can see through. Put in the insect powder and drive ten hens in and close the slide doors in both ends of the drum, and revolve the drum twice each way; then open the slide doors quick.

I will tell you a little about my bees. They gave me 2000 lbs. of honey, and I have 53 colonies in winter quarters. I winter them in the cellar, but I make two sizes of hives to take Langstroth frames. The small size holds ten frames, and the large one is 2 ft. long and holds 15 or 16 frames. In early spring and late in the fall I put the large size on the small one or around it, and turn the bottom-board over so there will be an air-space on all sides and on top—that is, I use the large size for an outer case, and in warm weather they are single-wall hives.

Moscow, Pa., Jan. 14. GEORGE E. ROZELLE.

The suggestion given above in regard to dusting the hens without catching them, and doing ten at one clip, is quite ingenious, and I think it might be a great saving of labor where vermin get to be very bad; also making a double-walled hive for winter of the same hive that is used as single-walled in the summer time might prove to be quite a convenience. The long hive holding 15 to 16 Langstroth frames is what was called years ago the Long Idea hive; and if I am correct our good friend O. O. Poppleton down in Florida is still making use of these same long hives.

Temperance

MORE WHISKY CONSUMED THAN EVER BEFORE
—IS IT TRUE?

We clip the following from the *Union Signal*:

BIG SURPLUS OF WHISKY MAY CAUSE DISTILLERIES TO CLOSE.

The question of whether it may not be wise for the distilleries all over the country to close down during 1914 because of overproduction and large stock on hand in their warehouses is being raised by several distilling firms of Kentucky, according to the *Chicago Tribune*. These men assert that the overproduction was so great during the fiscal years 1911, 1912, and 1913, that a "panic" in the whisky business will result in 1914 if something is not done to prevent it. One Kentucky distiller recently told the correspondent of the *Tribune*, "There was such a nationwide overproduction of distilled spirits during the fiscal years of 1911, 1912, and 1913, with 1914 starting off with the biggest deluge of all, that the trade of the country is justly alarmed. Propositions are being launched to curtail production, even to the extent of closing down distillery operations. Each of these years in turn has broken all previous production records in the history of the industry. As a result, there remains in the bonded warehouses of the United States, after a complete deduction of all withdrawals, a gigantic net total of 274,648,260 gallons."

All of which is in perfect accord with the explanation that has been given by the temperance people of the increasing consumption by the people of the United States of alcoholic liquors.

I am assured from several sources that the statistics given us, claiming the consumption of whisky is constantly on the increase, emanated from a statistician in the employ of the government, who neglected to tell us that his figures represented the amount of liquors in *bonded warehouses*, and not the amount that had been already *consumed* by our American people.

HALF A MILLION DEPRIVED OF THE MEANS OF A LIVELIHOOD (?)

Percy Andreas says that, if prohibition should prevail, five hundred thousand people would be deprived of a means of livelihood. Well, if prohibition shall prevail, about five hundred million people will have a far better way of living. Let that principle rule that gives the best to the most.

In Elijah's time, the messenger had to look seven times before he saw a cloud in the sky, and then it was "no larger than a man's hand," yet Ahab, the politician, had "to get in out of the rain." To-day, here and there on the political horizon, clouds are appearing. May they mean the abundant rain and "reign" of pure water.

In Nehemiah we read: "And I looked, and rose up, and said unto the nobles, and to the rulers, and to the rest of the people: 'Be not ye afraid of them; remember the Lord, who is great and terrible, and fight for your brethren, your sons and your daughters, your wives and your houses.'" Get into the fight.

MINNIE J. ELLET.

It has been said that a prophet is not without honor save in his own country. Well, our good friend who writes the above in the *Akron Beacon* is not exactly a prophet, but she bids fair to become a

prophetess; and I think, too, if she keeps on with such assertions as the above she will eventually receive honor in her own neighborhood and community. Amen to Minnie J. Ellet.

THE GREAT WAVE OF CRIME IN BIRMINGHAM, ALABAMA.

We clip the following from the *Birmingham Ledger*. It is from a traveling drummer who seems to be familiar with the circumstances.

Just think of 315 homicides in Jefferson County last year! Is the reason given by your coroner the prime reason for this slaughter? I think not.

I have visited Birmingham for three years without the open saloon, and have seen her for a year with the open saloon spreading its frightful influence over that city until her people are becoming alarmed at the wave of crime and evil sweeping their fair city.

What else can the people of Jefferson County expect as a result of these places of vice and shame? Do they not go hand in hand with crime and murder?

What class of your citizens carry pistols and lurk in the dark to strike down their unsuspecting victims? Certainly it is not your sober, industrious, peaceable, law-abiding citizens.

No, the pistol-toter frequents the saloon and houses of prostitution, and, while inflamed with whisky, is seeking trouble, and is prepared for it, and is a natural product of the saloon. To my mind the open saloon which the voters of Jefferson County have allowed to exist in their midst is responsible for this wave of crime sweeping over your city, and the responsibility is upon the shoulders of the voters of your county.

Should I want to move to Alabama to rear my children I certainly would not want to bring them to a city (much as I admire that city) where life is so cheap and virtue is regarded too loosely. I hope to see a moral wave begin to spread over your fair city which will sweep these festering places of evil and crime out of their midst, and then with the cause removed you can see some of the effects removed, and your city and county officials will not have to explain to the people the reasons for such conditions as now exist.

A DRUMMER.

THE TEMPERANCE WORK IN NEW ORLEANS.

When our great city dailies begin to lend their influence to the cause of temperance, something is going to happen. The clipping below from the *New Orleans Item*, taken from Congressman Hobson's speeches, is only a small part of half a dozen columns of similar matter:

Meat with strychnine placed along the streets will kill the dogs. No terrible examples will have any effect. The fact of the poisoned meat being placed on the street is the cause of the destruction. When this seductive poison, alcohol, is placed along the streets in saloons, men will take it. The fact of its being on the street is the real cause of its being taken. Irrespective of the question of the responsibility for its existence, the saloon is fundamentally an assassin.

When the true nature of alcohol becomes better understood, no community will longer tolerate these assassins who take their stand on the corners and

up and down the squares of our cities. In the premises the State has not only the right, but the bounden duty, to put an end to this wholesale assassination.

TREASURES ON EARTH AND TREASURES IN HEAVEN.

The clipping below was mailed us by A. F. Cowles, Swengel, Pa.:

Who is the God of this age?—II. COR. 4:5.

In 1907 there was paid in the United States for foreign missions, \$7,500,000; for drugs, \$27,500,000; for jewelry, \$60,500,000; for confectionery, \$128,000,000; for tobacco, \$949,500,000; for liquors, \$1,744,447,672.

How would it look to reverse these figures?

What do you think of the above, dear friends? and where are your own investments being made just now? Are they transient investments for this world only, or are they for time and eternity? Each one of us will have to answer for himself.

NO LIQUOR SOLD ON DINING-CARS IN THE STATE OF OHIO.

See the following, which we clip from the *Union Signal*:

NO MOVING SALOONS IN OHIO.

It is reported by the press that Attorney-General Hogan, of Ohio, has found that the constitution forbids a moving saloon, and has instructed the State Liquor Commission to issue no license to railroad companies to sell drinks on trains passing through Ohio.

WATER-DRINKING AN EXAGGERATED VIRTUE(?).

As might be expected, as the liquor men are crowded closer and closer into a corner they make desperate efforts to escape. The latest is that water-drinking is the cause of appendicitis. This discovery(?) was made in France; and the inference is that, if you drink wine instead of water, you will not have appendicitis. This piece of news comes from the *Providence Bulletin*. The concluding sentence is:

From these data the public is drawing the conclusion that total abstinence is an exaggerated virtue, even from a scientific point of view.

TOBACCO, CIGARETTES, ETC., AND THE HIGH COST OF LIVING.

An old friend just met me, and put out his hand, and said, "Mr. Root, it is just a year now since I used tobacco in any shape or form." Come to think of it, another friend said the same thing only a few days before, and these two men both agreed that they were feeling much better, mentally, physically, and morally. One of them spoke of his wife, and asked me how much it would help this trouble about the high cost of living if a few more would do as he had

done. He said it would help a big lot. He mentioned the names of friends of his who sometimes smoke toward a dozen high-priced cigars in a day. Do you suggest they can afford it? In one way perhaps they can. But how about the example it sets? How about the women and children who actually go hungry because the head of the home uses tobacco? Somebody away off sent me the newspaper clipping below. He did not give the name of the paper from which it was clipped, but it contains a splendid sentiment notwithstanding.

During the fiscal year 1912-13, 14,277,000,000 cigarettes and 7,700,000,000 cigars were burned by the American people. The Goddess of Liberty may have a fine statue, but there is more incense burned on the altar of My Lady Nicotine.

Next to the great Father above, we American people profess to be loyal to the Goddess of Liberty; but is there not a big truth right there? Are there not more of us who are really loyal to the Goddess of Nicotine than to the Goddess of Liberty? Very few fathers would be pleased to see their boys commencing to use tobacco. Am I not right about it? When we come to take the matter fairly and squarely and honestly into consideration, are there not still other higher and holier reasons for avoiding these things which certainly do us no good? How often I hear men say (and all kinds of men too), when they are discussing a man's value to the world and to the nation, after speaking of his other good qualities, "He does not swear, does not use strong drink," and finally they wind up by saying, "Why, he does not even use tobacco!" Is it not the general inference that the man who from principle has given up the use of tobacco has also given up almost every thing else that is bad and wrong, and ungentlemanly and ungodly? May God help us as a nation of people, not only to cut off the use of expensive things, but things that are positively harmful.

A CIGARETTE FIEND KILLS SEVEN PEOPLE; GAS-WELL KILLS SEVEN; EXPLODES WHEN CIGARETTE IS THROWN NEAR PIPE OUTLET.

TULSA, OKLA., July 24.—Seven men were killed and several others were probably fatally injured late to-day, when a gas-well exploded and caught fire at Lost City, about five miles west of Tulsa.

The explosion was caused by a cigarette stub dropped by a bystander, according to Stephen Snyder, son of a farmer living near the well, who was assisting the drillers, and was first of the injured brought to Tulsa.

Snyder is frightfully burned, and is not expected to live.

The above, clipped from the *Cleveland Plain Dealer*, is another illustration of the fact that the man or boy who smokes cigarettes is too stupid—at least oftentimes he is—to be permitted to run at large.

Gleanings in Bee Culture

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Editorial

REPORTS of extremely warm weather are coming in from all parts of the country. The danger will be that stores will be used up rapidly in brood-rearing. Beekeepers will do well to see that their colonies do not starve before spring.

ON page 20 of the advertising section of this issue will be found a letter from N. E. France that will explain itself. He has distributed something over 35,000 books on "Honey as a Food," and now has exhausted the supply as well as his funds.

E. R. ROOT expects to make a demonstration in the use of modern extracting machinery, including a power extractor, honey-pump, steam knife, and a capping-melter, at Des Moines, Iowa, on the afternoon of Dec. 11. This means, of course, that he will be present at the Des Moines convention Dec. 10, 11, and 12. For full program see Convention Notices on page 20 of our advertising section.

DONAHEY, THE CARTOONIST, A BEEKEEPER.

THE clever cartoonist of the *Cleveland Plain Dealer*, Mr. J. H. Donahey, has been a beekeeper on a small scale for several years. This year he enlarged his apiary somewhat and his interest has increased in proportion. Quite frequently his cartoons show the beekeeper or the bees, and of late he has begun to write an occasional article (signed "Uncle Biff") on the care of bees, or on some topic closely related.

Mr. Donahey is a cartoonist whose work attracts the widest attention, and he has already made his reputation along that line. Who knows but that some day he may also make a reputation for himself as a professional beekeeper? He has a good start.

OUR FRONT COVER PICTURE.

THE front cover of this issue shows the apiary of Mr. Earl M. Nichols, of Lyonsville, Mass. This apiary has the honor of holding the first Langstroth hive that was ever made. Earl M. Nichols himself is sitting in the very spot, as nearly as it can be

located, where Mr. Langstroth put his first movable-frame hive. In this connection (see p. 853) the reader will be interested in some history concerning W. W. Cary and father Langstroth; and perhaps he may derive some pleasure in looking at the old original building where the first Langstroth hive was made.

HONEY DAY IN INDIANA; A SCHEME TO BOOST THE SALE OF HONEY.

IN our last issue, under the head of Convention Notices, in the advertising section, page 18, we inserted an announcement to the effect that Indiana was to observe "honey day" Dec. 15. Mr. G. W. Williams, Redkey, Ind., Secretary of the Indiana State Beekeepers' Association, seems to be the man who is pushing this general scheme. He is prepared to furnish write-ups for the local papers, and, in addition, large display cards 7 x 11, to put up in groceries, calling attention to honey day, and asking everybody to eat a little honey. He has also sent circular letters to the secretaries of the various State beekeepers' associations of the country, urging upon them the introduction of a plan similar to this in their own States. The idea is, of course, to induce a larger consumption of honey, not only in Indiana, but throughout the country. A little effort on the part of beekeepers will do much toward calling attention to the value of honey as a food; and once consumers get a little of the honey habit they will keep it up.

A NEW MOVING-PICTURE FILM ON BEES.

SOME time last summer the Bureau of Entomology sent Dr. E. F. Phillips and a moving-picture photographer to Medina to catch some scenes of bees in action. A number of pictures had been taken at the government apiary, but Dr. Phillips desired some additional scenes which he could get at a large apiary. The two men spent a couple of days at Medina, during which time they secured some very fine pictures of our men and bees in action. There is a fine picture of a swarm clustering on a tree, and the means taken for hiving the same; a view

of a swarm rushing from a hive pellmell; one showing the various manipulations connected with extracting, using an eight-frame power-driven extractor, a capping-melter, and a steam uncapping-knife, and still another showing the handling of live bees. These and numerous other tricks of the trade were taken.

This film has now been released for the public, and is being shown at some of the principal moving-picture theaters in the country. We have been told by those who have seen it that it is an extraordinarily good one.

We suggest that our readers apply to theaters using Universal films, and ask to have this shown. It is a fine film, and will do not a little to educate the public in regard to the kind of work that is carried on in an ordinary beeyard, and, what is more, will advertise honey by showing how it is taken from the bees by modern methods.

THE SAFE ARRIVAL OF THAT CAR OF BEES TO FLORIDA.

THAT carload of 300 colonies of bees that we started on the 14th of November reached its destination at Ranlett's Landing, on the Apalachicola River, Fla., just one week later—namely, the 21st. Every thing worked out exactly as per schedule. This quick trip could not have been accomplished except by careful planning in advance. We personally visited the general freight agents of the principal lines over which the bees were to go. We explained that this was something of an experiment, and that, if it worked out favorably, we could do a greater business of the kind in the future. We told them stories about bees, and left with them samples of honey. It is wonderful what a little honey will do when applied at the right time and in the right way. The railroad people became very much interested, and promised to get that car through on fast freight trains.

The bees were loaded into an ordinary fruit-car with a door at each end and at each side. Unfortunately the weather turned very warm after the blizzard. But the hives were arranged so as to secure plenty of ventilation by opening the front and rear as well as the side doors. In spite of the hot weather for almost the entire journey the bees arrived at destination in good condition. Along with this carload of bees was another carload of bee-supplies—enough to make 600 hives more with frames of foundation. We aim to increase this 600 to 900, but may hardly reach that figure. If conditions are favorable for pollen and nectar we ought to be able to do it. If so, we shall

then load the bees into three cattle-cars and send them back north. So far our program has worked out according to schedule. It remains to be seen now what the future will develop.

THE PURE-FOOD LAW AS IT RELATES TO OHIO.

A SHORT time ago we had occasion to send an inquiry from one of our customers to the office of the Dairy and Food Commissioner of Ohio. The nature of the inquiry will be understood by the reply.

Mr. Root:—We have received your letter of the 10th and the enclosed copy of a letter from one of your subscribers inquiring about the labeling of honey. Complying with your request for a reply concerning the labeling of foods for publication, we are pleased to suggest the following:

Section 5774 of the General Code of Ohio says that no person within this State shall ***** offer for sale, sell, or deliver, or have in his possession with intent to sell or deliver, a drug or article of food or drink which is misbranded within the meaning of this chapter.

Section 5785 defines what shall constitute a misbranding of a food product: 1. If the package fails to bear a statement on the label of the quantity or proportion of morphine and other habit-forming drugs or any derivative of such contained in any food preparation; 2. If it is labeled or branded so as to deceive or mislead the purchaser, or purports to be a foreign product when not so; 3. If in package form, and the contents are stated in terms of weights and measures, if they are not plainly and correctly stamped on the outside of the package, 4. In case of a flavoring extract for which no standard exists, if it is not labeled "artificial" or "imitation," and the formula printed in the manner hereinafter provided for the labeling of "compounds" and "mixtures with their formulæ;" 5. If the package containing it, or a label thereon bears a statement, design, or device regarding it, or an ingredient or substance contained therein, which is false or misleading in any particular. This section then contains an exception clause which says that the section shall not apply to mixtures or compounds recognized as ordinary articles or ingredients of articles of food or drink, if each package is distinctly labeled in words of the English language as mixture, or compound with the names and percentage, in terms of one hundred per cent of each ingredient therein. The section closes with a statement of the size of type to be used in printing the formulæ, and with the statement that such compounds or mixtures must not contain an ingredient that is poisonous or injurious to health.

The sole purpose of the adulterating and misbranding law is to prevent the sale of adulterated and misbranded foods and drugs; in other words, to prevent fraud and deception, and to protect the lives and health of the people.

There is nothing in the law requiring an absolutely pure article of food to be labeled. It is much better, however, for all concerned that all articles, whether containing but a single pure ingredient, or articles known as mixtures or compounds containing several ingredients shall be labeled with the name of the article and the name and the address of the manufacturer or producer. Labels are inexpensive, and the manufacturer or producer shows an evidence of good faith when food products which he offers for sale are so labeled.

All products which contain habit-forming drugs, or which are mixtures or compounds within the meaning of the law, must bear labels stating such facts.

Briefly, then, the law does not distinctly say that articles of food must all be labeled; but the law does say that if articles of food are mixtures or compounds, or contain certain drugs, such articles must be labeled with a true statement of the facts.

Columbus, Ohio, Oct. 13.

S. E. STRODE.

CRACKED-WHEAT MUFFINS AND HONEY; A SOLUTION OF THE PROBLEM OF THE HIGH COST OF LIVING.

LAST summer, on page 514, of our issue for Aug. 15th, we spoke of the pleasure we had in eating a home-made cereal sweetened with honey. This cereal is certainly the cheapest thing of the kind in the world. It will go a long way toward solving the problem of the high cost of living, because it is almost a complete food of itself. It is nothing more nor less than ordinary wheat run through a family hand grinder such as can be obtained at any of the large hardware stores, particularly Montgomery Ward & Co. or Sears, Roebuck & Co., of Chicago. The mill is set so that the wheat is not ground fine; and when ground and cooked for 4 hours over a slow fire it makes a most delicious breakfast food in connection with a little extracted honey. The fact that it is ground coarse makes it all the more valuable to persons of sedentary habits, especially if they find it necessary to use cathartics at times. Referring to the muffins made from this cracked wheat, one of our subscribers along last summer sent the following inquiry, which was overlooked. He writes:

We feel interested in what you say about the above, but we shall have to ask you to make the recipe more intelligible. We have cups here in the South that will hold anywhere from a gill to three quarts. It may be that the people living north of the Ohio River understand what is meant when you say a cupful, but not many of us south of it would readily understand it.

Reidsville, N. C., Aug. 20.

JAS. M. GIBBS.

By a "cupful" we mean a common tea-cup holding half a pint. As some may have mislaid our Aug. 15th number, we are reproducing the recipe here.

Two cups whole-wheat flour; 1 tablespoonful white flour; $\frac{1}{2}$ teaspoonful salt; $\frac{1}{4}$ cup sugar; 2 eggs; 1 cup sour milk or buttermilk; $\frac{1}{4}$ teaspoonful soda; 1 tablespoonful melted butter.

At our house this kind of graham muffins is preferred by nearly all the members of the family to white bread, not alone because they are superior in food value, but because they are toothsome and delightful.

Ordinary wheat is now worth 90 cents per bushel in our locality. With a hand grinder one can grind up his own cereal as he needs it, a little at a time, in order to avoid its becoming wormy; and this is one reason why cereal foods are so high in price generally. They have to be put up in pound

packages, and these, of course, add to the price of their contents. Another large item entering into their cost is the advertising that appears in all the periodicals. This kind of overhead expense alone must necessarily double the cost of the food after it leaves the mill. But this cracked wheat can be had at practically the price of raw wheat per bushel because it carries with it no overhead expense; and it has as much or more food value than any of the cereals sold, at a small part of their cost.

During these winter months granulated extracted honey and cracked-wheat cereal or muffins make a menu that is fit for the gods. If they are prepared right they are more toothsome than any of the modern cereals whose praises are sung in every magazine in the country, and at a mere fraction of the cost.

Beekeepers who have honey for sale would do well to call the attention of their customers to the cheapness of cracked wheat as a cereal, at the same time explaining how well extracted honey goes with it.

THE TORONTO CONVENTION.

WE have just come from attending a very enthusiastic and successful meeting of the Ontario Beekeepers' Association held in Toronto, Nov. 19 to 21 inclusive. When we arrived at the convention hall we were not a little surprised to see so large an attendance. It was estimated that there were 350 present. This is larger than the attendance at conventions that have been held on this side of the line. Indeed, there have been only two meetings in this country, if we are correct, that surpassed it. One was the National, held at the World's Fair, Chicago, and the other the field-day meet at Jenkintown, Pa. But one feature peculiar to the Toronto convention was the fact that there was so large a number of extensive honey-producers who could measure their crops by the earload.

In this connection it is proper to remark that Ontario probably produces a larger amount of honey, and table honey at that, than any State in the American Union, even if we include Texas or California. The soil conditions just north of the lakes are superior to those just south of the lakes. The whole of Ontario seems to be a splendid fruit and bee country; for, so far as we can ascertain, the territory is well developed; or, to put it another way, it is but fair for us to say that more beekeepers probably could not be accommodated in the Province without overstocking, so that there is no use for beekeepers on this side of the line to migrate over into Ontario, as they will find

the country well stocked with bees and beekeepers.

But why so large an attendance? In the first place, the area of good bee country is very compact. The beekeepers would not have to go so far as they do in this country. But this alone would not explain so large a number of persons present. The secret really lay in the active work done by the secretary, Prof. Morley Pettit, Provincial Apiarist, located at the Agricultural College, Guelph, Ontario. For over a year back, he has been working to secure membership for the Association, with the result that he has doubled and trebled it; and now Ontario has something like 1400 members on its roll. We asked him how he secured so large a number. He replied, "By advertising." He kept at work at the local associations to get the members to affiliate with the Provincial organization, and to a large extent they have done this. It was not so surprising, therefore, that delegates from all over the Province were present, making something like 350 on Nov. 20, forenoon and afternoon.

We have always entertained the belief that the clover honey of Ontario was of a very superior quality. The extracted, this year at least, is several shades lighter than the same honey south of the lakes. One reason of this is that the Canada thistle, which is usually present in clover, furnishes a very superior honey. It is very light in color, and when blended with clover makes an article that is to all intents and purposes a water-white, or as near as any honey ever gets.

SNOW AN EXCELLENT PROTECTION FOR OUT-
DOOR-WINTERED COLONIES; IS THERE
DANGER OF ITS BEING TOO MUCH OF
A GOOD THING SOMETIMES?

MEDINA was in the snow-blizzard area of the Northern States that swept the central section of the country on the 9th and 10th of November. Such a blizzard, in this locality at least, was fully two months ahead of time. We were enveloped in snow to an average depth of two feet on the level to eight and twelve in drifts. The result was that our outdoor colonies, which we were expecting on the 10th to load into a car for Florida, were buried in many cases out of sight. It was not particularly cold—about 32 degrees all the time—and the snow was a splendid protection; but it was a little damp when it fell; and when the weather turned a little colder on the 11th the snow began to cake, and then we began to fear trouble. By digging down to some of the colonies we found that some of them were

suffering from want of air, and doubtless many would have died if we had not provided ventilation. Examination showed that the hot breath of the bees had melted the snow for quite a space around the entrance. In some cases the water from the snow froze, filling the entrance up completely, and, of course, the bees became uneasy. But, fortunately, we caught them in time.

Fuller particulars will be given, with a series of photos showing the result of the snow blizzard at Medina; but for the present, at least, it is proper to anticipate a question that may arise in the minds of a good many of our readers, as to whether there is much danger of bees suffocating under the snow. This question we have already answered in part, and it only remains for us to say that a light snow drifted around the hives, so far from being harmful, is beneficial; but when it drifts over the tops of the hives, thaws a little and freezes, there is danger of suffocation. An ordinary light snow, even when drifted over the hives, will do no harm for a few days; but such hives should not be left too long.

It will not be sufficient to run a board or a stick down to the entrance in case the hives are deeply buried, for the simple reason that such a procedure will not disclose the fact that the entrance may be closed with ice. For example, we ran a stick down and made a wide opening at the entrances of several hives, on the 10th. After this was done, Mr. Marchant thought he would investigate. He did so, and found that some of the entrances were clogged with ice. The only thing he could do was to use a shovel, and run his hand down and feel with his fingers in order to ascertain if the entrances were open—a procedure, by the way, not particularly comfortable.

In 1881, at the close of March and opening of April, we had a three-days' blizzard of snow. At that time the hives were buried clear out of sight. Naturally enough we supposed that this snow would be a good thing; but that spring recorded the most fearful mortality among outdoor-wintered bees that was ever known in all modern beekeeping. At all events, our own loss was the greatest we have ever had, and the complaints from all parts of the North showed the same heavy losses. Prior to that time, and even after it, our own winter losses had not exceeded five per cent, and usually did not go above two per cent. We are coming to believe more and more that the bees that year suffered more for want of ventilation on account of the entrances being closed with ice than because of the extreme cold that then prevailed.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

F. A. GRAY sends me a sample of his fall honey which he says is almost all sugar; and as he fed no sugar he wants to know the source of the honey. My guess is that it is a good grade of honey-dew that has candied. I'm forwarding the sample to ye editor. [After examining the sample we should unhesitatingly confirm Dr. Miller's opinion that it was a good grade of honey-dew.—Ed.]

D. F. COY is in the sweet-clover region that surrounds Chicago. In 44 days, beginning July 7, his best colony stored 188 sections of sweet-clover honey. A daily average of $4\frac{1}{4}$ sections for 44 days shows sweet clover a good yielder in that case. Mr. Coy depends chiefly on sweet clover for his surplus. It is a long yielder, but the honey has a greenish tinge, and does not present as fine an appearance as white-clover honey.

LOUIS MACEY, p. 771, please don't paint in too dark colors the evils of sending queens by mail. Of the queens I've had by mail, the great majority have done good work and lived the usual span. Nevertheless your suggestions are well worth considering, and in answer to your question I may say that E. R. *has been* sending queens in packages of bees. [Young queens will stand a journey through the mails much better than older ones. Experience shows that old queens or breeding queens, six months or a year old, do not stand the journey as well as a young queen that has just begun to lay. It is right here that baby nuclei have one advantage in that the queens can lay only a few eggs by the time they are packed off in the mails. Yes, sir'e; as a general rule pound packages of bees contain a queen.—Ed.]

M. A. GILL is level-headed in that article, p. 770, but one point will bear comment. He says: "It matters not how slipshod the methods are that produce a can of extracted honey. If it is ripened—" "Ay, there's the rub"—if it is ripened. But that's just the thing most likely not to be, if slipshod methods are used. And right there is the spot where Mr. Slipshod is likely to do twice as much damage to the reputation of honey with extracted as with comb. He may do his worst with comb, and the consumer may be disgusted with the appearance of his product, covered with bee-glue and travel-stain; but the next time he sees a sample of comb honey like Gill's he's just as ready to grab for it as if he'd never seen Slipshod's. Not so if he has had some of Slipshod's unripe extracted. It makes him

suspicious of all honey; and *seeing* a sample of best extracted doesn't remove that suspicion, as in the case of comb honey. Quite right, Bro. Gill; your motto, "Not how much, but how well," is the motto for producers of comb honey, and doubly so for producers of extracted honey.

J. L. BYER says, p. 670, "For 'our locality,' 'bees always strong' is the only safe rule if best results are to be obtained, and I never fret about bees being reared out of season." Same here, friend Byer. I don't believe there's ever a time when I would gain to restrict brood-rearing except for two causes—swarming fever and foul brood. On the other hand, I don't believe there's ever a time when I can profitably do any thing to favor brood-rearing except two things: To keep bees snug and warm, and to see that they have *abundance* of stores.

There may be localities or strains of bees where at times brood-rearing should be discouraged; but I suspect that's the exception and not the rule. There are, no doubt, places or bees where brood-rearing would stop entirely if the beekeeper didn't interfere; but I suspect they are the exception. I don't believe I ever gained by stimulative feeding, and I'm sure I've lost by spreading brood. If my bees rear all the brood they can cover (and they do), what more would you have?

It may be all right to haul bees without fastening in hives, say 19 times out of 20; but after some experience I've had with bees getting out when supposed to be fastened in, you don't hire me to haul them without fastening—not with horse power. [There is one point, perhaps, in this that you have overlooked. A colony of bees that is shut in a hive by means of a wire cloth is often in a state of excitement on account of the confinement and lack of air. The minute that the wire cloth breaks loose *en route*, they may rush out like a lot of mad hornets and sting viciously. If, on the other hand, that same colony had not had its entrance closed up, and were given a little smoke at the entrance before it was closed, it would remain quiet during the entire journey. A few bees will sometimes crawl out of the entrance; but the initial smoking and subsequent jolting will put bees on their good behavior. If short of air they will crawl out of the entrance, where they will seldom do any harm; and if hauled in an automobile truck and they should sting, they will cause no trouble—at least not a tip-over.—Ed.]

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

Have you ever noticed that exposed honey just off the hives will attract robbers much sooner than honey that has lost the hive warmth? The odor given off is much less pronounced from honey that has cooled off.

CLIMATIC CONDITIONS CAUSE VARIATION IN COLOR OF HONEY.

Mr. P. C. Chadwick says, Oct. 1, p. 671, that every form of nature follows its law—each form on the line on which it was created, and that each one follows only the line given it. In the first place, we mortals don't know definitely the laws governing every form of nature, as there are so many of them. Flowers and plants are undergoing a constant change. No two plants are the same under different conditions. They adapt themselves to environment the same as do people. So it may be safely stated that one of the fundamental laws of nature is change and variation. I think that we have very good evidence here in Colorado to prove that flowers secrete nectar under varying conditions of climate, and have different colors as well as qualities. I do not know what color alfalfa honey has in California; but I do know that we have white alfalfa honey in Colorado in many districts. I think I shall have to set Mr. Chadwick's twenty-five years of observation at naught and state that honey changes with the wind, moon, and soil conditions. The various honeys such as alfalfa, orange, white clover, and basswood, however, *approximate* a certain definite standard. I am satisfied that alfalfa honey will vary from white to light amber in color, and in body from light to heavy. Whether the atmosphere or the food Mr. Chadwick eats has any effect on the color of his blood, I will not say, but it is an accepted fact that climate has an effect on the color of people's skin, hair, eyes, etc. People on the Pacific coast have a different complexion from those in the Rocky Mountain region. "Nothing is permanent but change." [There can be no question but that the color of alfalfa honey (and this is true of other honeys) is dependent somewhat on the locality in which it is produced. The buyers have ample proof of this.—Ed.]

COMB HONEY OR EXTRACTED HONEY.

The beekeepers of the West have had a hard proposition to face in the last few months. The price secured for comb honey, which is the kind largely produced in Colorado, has fallen from ten to fifteen per cent below the price secured last year. Bee supplies have gone up about ten per cent. This

lessening in prices secured for honey, and advance in supplies, is going to bring about important changes in beekeeping throughout the West. It is going to put a damper on beekeeping by those who have depended upon it for a living. This effect will not be apparent at first. Another effect of the lower prices secured for comb honey and the raise in the price of supplies will be the turning to extracted-honey production. Extracted honey will bring the Western beekeepers almost as much as his comb brought this year if he seeks his own market and develops it. Extracted honey can be raised with a much smaller outfit of supplies. There are many Western honey men who confine their efforts entirely to extracted honey, who have practically no outlay for supplies, while the comb-honey men will have to expend several hundred dollars each year for sections and foundation, and as much more for shipping cases. The home market in Colorado (and probably in other States to the south and west) does not consume more than ten per cent of the total production. This should be and will be increased; but it is doubtful whether the home consumption will equal the production for many years. There are too many towns of two or three hundred population where several cars of honey are shipped annually. [An enormous crop of clover honey was produced east of the Mississippi last season. As much of the Western honey finds its market in the East, the severe competition of the Eastern honey this season would necessarily affect prices on the Western. Prices, however, next year should resume their normal, as it is hardly probable that there will be another as heavy a yield of clover honey in 1914, if the law of average holds good.—Ed.]

TREATMENT OF SAC BROOD IN MINNESOTA.

Mr. J. Alf Holmberg, apiary inspector in Minnesota, recommends treating sac brood where there are not too many colonies affected. He reports a yield of 75 lbs. from a diseased colony so treated. It may be that sac brood is more destructive in Minnesota than in Colorado, but I have had scores of colonies affected that produced over a hundred pounds of comb honey each, and they were not treated, the disease disappearing, or practically so, before the season was over. If but a very few colonies are found affected in a locality it might be well to treat all affected ones, if treatment will cure the trouble; but we have so many

colonies affected that we pay no attention to it, and it causes very little trouble except in a very few cases.

Mr. Holmberg mentions carelessness in treating foul brood. Carelessness is so prevalent among beemen in handling foul brood that it is better to burn every thing diseased if but a few colonies are found. Not long ago, in company with one of our county apiary inspectors, I was going the rounds on reinspection work to see how well diseased apiaries were cleaned up. We came upon one alert young fruit-grower who had about twenty colonies, and among them a few cases of disease. He had the government bulletins, and had studied them, especially the one on "Treatment of Bee Diseases," by Dr. Phillips. He had invested in a gasoline-torch for disinfecting, and was following disinfection directions to the letter; but it was right at the close of the honey-flow, and an hour earlier he had been called to dinner, leaving a diseased colony untreated with the hive cover off, which he had forgotten to put on. We came in time to find a nice case of robbing going on while he was out at the honey-house disinfecting hive-bodies with the blue-flame torch! He undoubtedly profited by the experience, and I mention the instance, thinking that it may be helpful to some other earnest young beekeeper.

MUCH PUSHING NECESSARY TO SECURE FOUL-BROOD LEGISLATION AND APPROPRIATIONS.

It is unfortunate that we did not secure an appropriation for bee inspection, as the law enacted is such a worthy one for the control of bee diseases. Prof. Wilmon Newell, with his corps of inspectors, was ready to do effective work. It should not be left with the chief inspector to secure legislation for beekeepers. The State and local associations should work hand in hand in this work. The writer, who is deputy bee inspector in Colorado, under C. P. Gillette, State Entomologist of Colorado, had considerable to do with securing Colorado's law for bee inspection with an appropriation to carry on the work; but the real test always has come when the bill is in the hands of the finance committee of the Senate. The experience in securing the last law will illustrate well what work needs to be done. The bill had been drawn up and introduced by Hon. O. C. Skinner, who was speaker of the last House of Representatives. Mr. Skinner was at that time and is yet a beekeeper, owning several hundred colonies. He is an active member of the Montrose Beekeepers' Association. Mr. Skinner introduced the bill in the house, and his colleague, Senator Tobin, of Montrose County, introduced the bill in the Senate.

Mr. Skinner told me, when I took the bill to him to be introduced, that there probably would be some difficulty in getting it passed, as it carried an appropriation of \$2500 annually, but he said that with hard work we could probably get it through.

The beekeepers over the State were urged to write their legislators, and most of them were furnished with the names of their own legislators in case they might not know who their own representatives were. The beekeepers were also urged to write to the Governor. Governor Ammons is a farmer and stockman himself, and is vitally interested in building up the agricultural interests of Colorado. In answering my letter, asking him to do what he could for the bill, he wrote me that he would sign it, and, furthermore, stated that he would do all he could to get it reported out favorably by the finance committee. This I think he did; but the finance committee had decided to let this bill die a natural death in one of their pigeonholes, along with many other bills. About this time Prof. Gillette wrote me that he doubted very much whether we could secure any legislation carrying an appropriation, as the legislature was determined to pass no new bills carrying appropriations.

I went to the telegraph office and sent five or six telegrams to the presidents and secretaries of our local beekeepers' associations over the State, and urged them to send telegrams to their representatives and senators. I know that nearly all of these beekeepers did this. Mr. J. C. Matthews, of Montrose, sent a telegram to Senator Tobin, and also to Mr. Skinner, I believe. Now, Mr. Tobin went to the finance committee and told them that he had come for that bill, and expected that it would be reported out favorably, and he stayed until he got the bill reported. But we didn't get the full \$2500 annual appropriation. It was cut to \$1500 annually. The Governor signed the bill as passed by the legislature, and now the law is in effect.

The beekeepers, if they will all stand together and work hard at the right time, can secure worthy recognition of their industry. The organization of the campaign is the important part. There must be a leader, who should be one of the officers of the State Beekeepers' Association, who will keep the mails hot telling the beekeepers when to write, and offering suggestions as to what arguments to make. [Mr. Foster is exactly right. If Entomologist Newell, of Texas, had had the support of the beekeepers of his State, as did Professor Gillette, of Colorado, there would have been no lack of an appropriation.—ED.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

Hard by the garage grew a rose,
Wind-tossed with stem atilt.

One night, unseen,
A chauffeur mean
Some petrol on it spilt.
Adulterated rose nectar
A bee did sip next morn,
And now it does
No longer buzz

But toots just like a horn.

Some friend in Toronto sent me the above clipping pasted to a postal card.

* * *

Moving bees without closing the entrances is all right for the man who understands his business and is either doing the work all alone or is able to get help thoroughly reliable and capable. Without these conditions it is a risky business, and I advise beginners to close all entrances bee-tight with wire cloth. Of course, in hot weather abundant top ventilation will be necessary too, to avoid suffocation.

* * *

As one of the conditions for fast work in extracting honey, it is stated on page 776, "If frames are spaced $1\frac{3}{8}$ from center to center." To my notion that would be a factor to retard rather than help; and if they were spaced more like $1\frac{3}{4}$ than $1\frac{3}{8}$, things would go much faster, especially after combs are in the honey-house. Wide spacing of extracting-combs is an economizer in more than one way, and it is a practice fast coming into use among many producers who were formerly opposed to the plan. Once try it, and I venture to say that not one in a hundred will return to the old plan of close spacing.

* * *

According to your dictum, Mr. Editor, p. 746, Nov. 1, a great many communities ought to be left out in the cold because the majority of places still have not the gump-tion to have roads good all the year round. But we are gradually coming to the point where people see the necessity of good roads, and at present there is more agitation along this line than ever before. Some say that the auto owners are behind these good-road schemes for selfish purposes; and while there may be something in this contention, yet for once, at least, let it be said that selfishness (?) will be good for all classes of the community.

* * *

E. D. Townsend says that "alsike clover is the future dependence of Michigan for its honey supply." In many respects Michigan must be a great deal like Ontario, as the same statement would largely apply to

this Province, comparing one year with another. While there are many localities where white clover yields a good surplus some years, generally speaking "white-clover honey" is a misnomer, as I believe that three-fourths of the clover honey of Ontario is annually gathered from alsike. Certain it is, that, if one hears a beekeeper asking about a prospective location, invariably the question comes up, "How is it for alsike?"

THE CONVENTION IN TORONTO.

These notes are being written just ten days before the date of our annual convention in Toronto, and indications point to a record attendance. The date is a week later than other years, and this means that most beekeepers will be through with the rush of the work for the season. Personally I am looking forward to this annual meeting with a thrill of pleasure. While I always get something of value from the program, yet after all I plead guilty to being actuated more by the social instinct than any thing else; and I just wonder if there are not many others with the same weakness. After all, what would life amount to if only *dollars and cents* were all one had to take pleasure from? Show me a man with just that predominating passion, and you may be sure he is a source of pleasure to no one else—possibly not even to his own selfish nature.

TOBACCO SMOKE FOR BEES.

Arthur C. Miller says that Henry Alley never advised tobacco smoke for introducing queens to full colonies. Never mind whether he did or not; yet many beekeepers have used that plan scores of times, this scribbler among the number. But, thanks to friend Miller, I find, so far as I have experimented with the plan, that ordinary smoke from any thing used commonly as a smoker fuel will answer the same purpose as the tobacco. This saves buying the tobacco and saves me from getting sick, as has already happened when I seemingly got more than the bees did. Come to think of it, quite a few times I have seen bees rolling out from the entrance when smoked with tobacco, so Mr. Miller's plan saves *bees* from getting sick too. I just wonder if it would be wrong to wish that tobacco would make *every thing sick* that uses it. I suppose the matter is none of my business; but I am led to make this query because of a number of good friends of mine who have repeatedly told me that they wished they could quit using the "stuff." You see, if it made them sick *enough* their wish would be fulfilled all right.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

In the issue for Nov. 1, p. 754, Mr. Doolittle recommends the use of open entrances in moving bees. Editor Root also comments on the plan. Mr. L. L. Andrews, of Corona, who has had a wide experience in this line, left the impression with me last spring that he had not found the plan satisfactory. There is one very great objection that I see in a locality where there is liable to be foul brood, or where it is known to be prevalent; that is, the danger of spreading the disease to the four winds. Personally I think the plan should be discouraged, as there is too much risk in this connection.

CLEANLINESS IN EXTRACTED-HONEY PRODUCTION.

Nov. 1, p. 770, Mr. M. A. Gill has an interesting article. Much of it is good, but a part of it I do not feel like letting pass without comment. I have very great respect for the opinion of such a man as friend Gill, for these old timers with years of experience deserve the place they hold in the esteem of the beekeeping public. Yet there are some things in this article which do not sound fair to those who produce extracted honey. I quote the following: "Now, if a campaign is to be started urging the production of more comb honey, let's first start a school urging the placing of a better grade on the market." That part is right; but why stop with comb honey? Such a school is needed in the extracting line just as much as it is needed for a better grade of comb honey. Mr. Gill also says, "It matters not how slipshod the methods are that produce a can of extracted honey. If it is ripened, settled, or properly strained, it is all right for market, and anybody who can turn a grindstone can produce extracted honey whether at a profit or not." Is it not true, also, that those who could turn the same stone can produce comb honey? I think the rule would apply equally in either case. Mr. Gill's comparison is hardly fair to those who take pride in producing a fine grade of the extracted product. A beekeeper who is inclined to be neat and painstaking in his work would in all probability do just as well, so far as producing a fine article is concerned, with comb honey as with extracted. I fail to see why all of the careless and slovenly inclined should be uninstructed and allowed to continue to produce a poor article of extracted honey while those producing comb honey were being instructed in producing comb. A good, clean, well-ripened, neatly packed package of ex-

tracted honey is just as important as is the same in comb. The tendency to be dirty is greater among producers of extracted than comb honey, because the faults do not show so plainly on the face of the business; yet there is all the more reason for care and for the discouragement of unclean ways. Neither can I agree that extracted honey, merely because the ants, larvæ, and dirt are strained out, and the honey is put in second-hand cans and a weather-stained case, is right for market.

I quote the following from an editorial in the November issue of the *American Bee Journal*: "I have just received a letter from Mr. J. F. Diemer, of Liberty, Mo., in which he states that he purchased some honey from a commission house. The honey was put up in 60-lb. cans, which were bright enough on the outside; but from the sample of tin sent us, they were about the worst ever on the inside. Mr. Diemer stated that, besides the rusty cans, there were so many bees, etc., in the honey that it was easy to tell that the producer was one who leaned toward black bees rather than Italians." Further on in the same editorial the editor does not altogether discourage the use of second-hand cans. Here is a sample of not only a dirty mess of honey, but also of one put up in a second-class manner, and yet the practice of using such second-hand methods is not altogether discouraged. To be sure, the honey in question was not properly strained; but even if it had been it could not have been first-class when packed in second-hand receptacles. If I had my way about the matter I would not permit the reuse of any can that had once been on the market; and I firmly believe it would be a good move for producers if they would adopt a can that could not be opened without destroying it for future use. Why dealers should be permitted to salvage these old cans, and turn them back to a class who are not overly particular about either the receptacle used nor the manner in which the product is put up, I can not see; for, as a rule, that is the only class of men who would care to allow their produce to be packed in such a manner. I have never used a second-hand can except when the purchaser had returned one to be filled of his own accord. I am perfectly willing to help Bro. Gill with his school if he will give a class for producers of every kind of honey on the market. But even at that, those who are not inclined to be tidy will fall more or less into the old rut.

Conversations with Doolittle

At Borodino, New York.

UNPAINTED HIVES WITH SHADE-BOARDS.

"I am in a quandary as to whether to paint the hives I am planning to build this winter. I suppose you read what Dr. Miller and Editor Root have to say on this painting matter, pages 400 and 401, June 15."

If Dr. Miller had not "fallen down" so easily he could have found that "weak spot" so as to give the last telling "jab" at the editor; for, unless locality has much to do with the matter, the editor's question, "Is it not true that an unpainted hive assumes a gray-black hue—a color that becomes almost pure black?" has no foundation, at least not in Central New York. Here, unpainted wood, if exposed to the weather, slowly changes to a light gray, or dull whitish tint, through the formation of a slight fuzz all over the exposed surface. In localities where wasps and hornets abound, this fuzz is scraped off with the mandibles of these insects, and used, when mixed with their saliva, to form their nests. I have yet to see a wasp's or hornet's nest of a gray-black or black hue. Now, where does this apply? This light-gray fuzz so "tangles up" the rays of the sun by the air circulating through it that it is almost cool in comparison with a hive which is painted venetian red, and compares very favorably with the hive which is painted white. With the experience of placing my bare hand on the surfaces of hives of different colors, scores of times during the past, I am at a loss to know how any unpainted hive which had been left out in the weather for a period of four or more years could be "almost hot enough to blister the hand." I had scores of combs melted down in hives painted in dark colors when I used to paint my hives, but never a comb in an unpainted hive, nor in one painted white. So if I were to paint hives, white would be the only color I would use.

But after seeing water running out from the entrances of painted hives on cool spring mornings when the bees were evaporating nectar gathered the day before, and after having combs mold to a far greater degree during the winter in all painted hives, while the combs and inside of the hives which were unpainted continued in far better shape, I decided, some twenty-five years ago, never to paint another hive.

As to the economy of painting, I consider it a myth. The editor cites the painting of houses to prove his ground. Last week I was told that a house two miles from here, which was built and the siding put on 87

years ago, had been torn down to give place to a modern house. As this old house had never been painted, I went over to see the siding. I found many of the boards almost as good as when put on. Others were cracked and checked at the ends and in different places, with a few somewhat decayed around the nails which had held them in place, while all were worn from one-third to two-thirds down or through by the storms beating upon them, except the lap, under which most of them were as sound as ever. Why talk about the economy in painting houses? The owner said that old house had not leaked through the siding since he bought the place, twenty years ago. The main reason for painting either houses or hives is the looks. If the looks keep a man interested and contented with his home or his bees when he otherwise would make "shipwreck" of either or both, with such a *one*, painting certainly pays; but where any man or woman can keep up the same interest in bees, and keep them in unpainted hives, my experience proves that more "dollars" will come to such a one than would accrue where the hives are painted.

But whether painted or unpainted, all hives should have shade-boards. These are "miles" ahead of shade from trees or buildings for bees, and for profit from an apiary as well. I am surprised to note that Dr. M. uses painted tin covers, or those having the wood covered with zinc. Either keeps the moisture in nearly as badly as does paint. Leave the wood cover without paint, doctor, and put the zinc over the shade-board. I make a "skeleton" of $\frac{7}{8}$ -inch-square strips, as wide as the cover of the hive, and eight inches longer than the hive is as it stands with the entrance to the south. I raise the back or north end of the skeleton four to six inches from the cover by means of posts or legs. This allows air to pass over the cover, and carries off the rain. To the top of the skeleton I nail $\frac{3}{8}$ or $\frac{1}{2}$ inch lumber one foot longer than the cover of the hive is wide. I cover this with zinc, tin, or two-ply balkan roofing paper. The latter answers all practical purposes, and costs only 75 cents for a roll which will cover 108 square feet. The tin and paper need paint to keep them from deteriorating. The thin lumber can be obtained from boxes in the country store, at a cost of little more than a song. When nailing to the skeleton, allow the foot an extra length to project equally on each side of the hive or cover. If in a windy place a brick or stone will be needed on the

Continued on page 862.

General Correspondence

NOTES, NEGOTIABLE AND OTHERWISE

BY ARTHUR C. MILLER

Put on supers when it suits your convenience, and take them off when the honey is ripe, not before.

The first three lessons for beginners should be, How to Light, How to Load, and How to Use a Smoker. Some veterans will please take notice—and lessons.

I had a little skit on the color blindness in bees. The editor left it lying around loose, and Mr. Lovell picked it up, not knowing that it was loaded. My sympathies are extended to the afflicted.

Some old professors said that action and reaction are equal, and opposite in direction. They may be opposite all right, but not equal. Use your finger to push the bee through a hole and you won't ask me any fool questions.

If you have neglected to feed your bees until now you should use one of the candies. They are safer for cold-weather feeding—a little more trouble to make, but a lot easier to use, and a whole lot better for the bees—in cold weather, mind you, and, again, some other times.

If you really want to improve the bee-keeping conditions around you, to help to eradicate bee diseases, get the beekeepers to subscribe to the bee magazines. If every reader will get just one new reader the uplift in bee culture will be beyond anticipation. And I don't own a red cent's worth of a bee paper at that.

If you do not get what you think your honey is worth, do not blame the buyer, the commission house, nor any one but yourself. Probably you are afraid to ask all it is worth, and a little more, and perhaps you are hard up and need the money. Nothing "bears" the market more than necessity. Poor goods stand next.

Never mind the increase in price of lumber. It is a small matter after all, and you can not afford to go without proper equipment and then make up for it in labor. Your own labor is even more costly than what you hire, and you can easily waste many times the cost of the needed appliances by not having them. P. S.—I do not deal in supplies.

A man quoted to me the old saw that bees won't sting you if you hold your breath, and added that it wouldn't work—told him he didn't hold it long enough. Bees don't sting dead things—not if they are quite

dead, and the color is right. Incidentally, the odor of things thoroughly dead does not cause the bees to assail them. I wonder why. Guess they like that odor.

Lost, strayed, or stolen.—One odor theory. A liberal reward will be paid for its return to E. R. R., Medina, Ohio, and no questions asked. [The odor theory is still on deck. The editor is not ready to abandon it just yet. Any thing that tends to destroy or obliterate colony or queen odor by smoking, for the purpose of introducing, may or may not support the theory. We are waiting for more evidence.—Ed.]

Have you begun your plans for 1915? Yes, I mean that year, for those for 1914 should have been made long ago, and need only a little polishing up. That sounds foolish, like a waste of good space, for the year-ahead planners will do it anyhow, and no power known to man can start the other kind into getting a move on. But there may be some who only forgot, or are taking a nap, so I guess we will let it stand. And, by the way, do not confuse real planning with day dreams. They are quite different.

Funny what different *notions* are held on smokers and the use of them. A good many of the boys use any kind that may be at hand, and a lot of others want something very special. One wants a little vest-pocket affair. Another wants something on the style of a smelting furnace, and about as handy. One will spend much of the daylight hours in stoking, while another seems able to make a pinch of fuel do all day. One will suffocate in a cloud of smoke, and another will forget there is such a thing. And there are some benighted individuals who persist in using a nasty old pipe filled with tobacco. Say, wouldn't it make some show to line up the boys with a collection of the sundry varieties, and set them going?

There is one way to sell your honey which will bring top price, take all you raise, and drive you distracted to meet the growing demand. Produce the rich, ripe, come-again kind. It sells itself as well as rum. And right there lies a tale—a true tale. A certain dealer in bottled liquors ordered a few jars of honey to be used with liquor for coughs and colds. Soon more was wanted; then more and more, and yet more. Each year the volume has increased. Great quantities have gone to people who never use liquor, and now the dealer says that if the trade keeps on growing it will exceed his liquor trade and drive him out of it. The honey has always been of the highest

quality, and sells itself. It has become a staple, a necessity, and the producer thinks it a good way and a good place to fight liquor. When a club fails, try sugar plums.

Providence, R. I.

A VISIT WITH R. F. HOLTERMANN IN CANADA.

A Modern Twelve-frame Power Extracting Plant; Troubles with the Honey-pump Overcome; the Steam Uncapping-knife vs. the Cold Knife; Capping-melters vs. Draining-cans.

BY H. H. ROOT



R. F. Holtermann, of Brantford, Ont., Can. Mr. Holtermann is wintering 700 colonies in Ontario, and 150 in Missouri.

Ever since Mr. R. F. Holtermann bought his twelve-frame extractor I have been promising to cross over into Canada in order to see it work and to see several other things work besides; but circumstances prevented my going until July of this year. Early in July Mr. H. wrote that the honey-pump was not working properly, and that I would simply have to come. I learned later that there had been

some speculation among the students working for Mr. Holtermann as to whether I would dare show up, and that Mr. Glen Holtermann, who, by the way, is six feet tall and then some, had said that they would see when the time came that I would make some excuse and stay at home. However, contrary to expectations, Glen, who was waiting at the station with the auto, saw me get off the train at the appointed time. We started at once for the particular yard that was being extracted, several miles away. I had no need to ask Glen whether they had already begun work for the day, for he was decidedly "stuck up," in spite of the fact that he was dressed in bib overalls.

Although the distance from the station to the yard was between five and six miles, we covered it in a very few minutes in the auto. About a year ago Mr. Holtermann decided he could no longer waste his time in going from yard to yard behind a horse,

and so he purchased a five-passenger automobile—an Overland—which has proven a good investment in more ways than one. Frequently the "democrat," loaded with fixtures, is towed behind the machine. Light loads in a single wagon may be pulled easily over good roads, and much better time made, than with a horse. Of course, the average automobile is not adapted for towing heavy loads.

When we reached the yard I went at once to the honey-house, and a busy scene met my eyes. In all, there were six helpers keeping the twelve-frame extractor going, besides those out in the yard. Fig. 1 shows the whole plant, although this particular view was taken at another yard.

Before describing in detail the various parts of the extracting outfit it may be well to mention that Mr. Holtermann drives his twelve-frame extractor with a gasoline-engine, which, to economize space in the room, is located outside the building, the belt running through a hole cut in the wall, Fig. 2. The pump conveys the honey from the bottom of the extractor to one after another of the large tanks seen in the background of Fig. 1, each of which holds about 3400 pounds. The tanks, of which there are about 26 in all, are six feet high and three feet in diameter. Mr. Holtermann does not use a capping-melter, having, instead, two large uncapping-tanks in which the cappings drain. He is using for the first time this season two steam uncapping-knives. Heretofore he has always used cold knives entirely. After being uncapped the combs are placed diagonally, as shown, in a super which stands over a large square pan to catch the drip.

When I arrived I noticed that the belt was not on the pump. It would not stay on, in fact; and the pump, while a thing of beauty, was hardly a "joy forever." Nearly the whole time of one man was taken in drawing off pails of honey from the bottom of the extractor and lifting them up and pouring the honey into those high tanks. I at once saw that two mistakes had been made in following the instructions, and we proceeded to make them right. In the first place, the large pulley was located on the extractor shaft and the small one on the pump. We exchanged pulleys, putting the small one on the extractor-shaft, and the large one on the pump, thus reducing the speed greatly. It depends somewhat on the temperature of the room, and of the honey also, on the height to which the honey must be elevated; but if the pump runs 60 to 100 revolutions per minute it is fast enough for all requirements. Mr. Holtermann's extractor being a twelve-frame, the pump was



FIG. 1.—Interior of one of R. F. Holtermann's extracting-houses. The young man on the left is Walter Hull, of Connecticut. The next is Warren Munroe, of Ontario. These two were students with Mr. Holtermann this last season. Glen Holtermann is shown at the extractor.

running a trifle over 100 revolutions per minute.

We next took down the $\frac{3}{4}$ -inch pipe which conveyed the honey from the pump to the can, and replaced it with one-inch pipe. When this change was made the pump ran easily with a comparatively loose belt, and kept ahead of the extractor without effort. On one occasion when swinging the horizontal pipe to the next tank we found it was not quite long enough to reach. We threw the pump belt off, therefore, while we were putting on a longer pipe, the extractor being kept running all the while. It took about ten minutes to rig up the longer pipe; and during this time the level of the honey in the extractor-can had risen to a point where it was almost touching the bottom of the reel. In less than fifteen minutes after the belt was put on, the pump had "caught up" and we could see the bottom of the extractor again.

It was with a great deal of interest that I watched the operation of this twelve-frame extractor; for it has been suggested more than once, that, since centrifugal force is greater closer to the center, other conditions being equal, it is possibly a mistake to use extractors that are so large. However, it is perfectly clear in my mind that, since the

velocity of the combs is so very much greater in the larger cans at a given reel speed, this more than offsets the slight disadvantage of having the combs further from the center of the reel. Practical proof of this was not lacking; for this twelve-frame extractor emptied the combs in less time than I thought was possible; that is, it required less time for a set of combs, considering the heavy body of the honey, than any extractor that I have ever had any thing to do with.

In order to keep the extractor moving as much of the time as possible, Mr. Holtermann has two men ready the instant the reel comes to a stop, one to take out the empty combs and the other to put in the full ones to be extracted. I found that the average time required to change the twelve combs was fifteen seconds. Although the honey had just been taken from the hives, so that it was quite warm, it was nevertheless of very good body, and the average time that the combs were whirled was two and a half minutes. This means that in every two minutes and three quarters, or in every three minutes at the most, a twelve-frame super of honey was extracted. Theoretically this would figure, counting five pounds to a comb, something over 1000 pounds per hour. Taking into considera-

tion occasional delays, the average rate while I was there was about 700 pounds an hour.*

Mr. Holtermann himself works in the yard, having two helpers to assist him. Fig. 3 shows the process of removing the honey from the hives. One helper is provided with a smoker, and the other with two brushes. The one with the smoker removes the cover, loosens the frames, and handles the smoker, while Mr. Holtermann shakes the frames one by one, then holds them momentarily while the second helper brushes them clean of the few bees remaining, both sides being brushed at one stroke. On several different occasions the three men removed from the hives, cleared off bees, and brought to the honey-house, eight twelve-frame supers in ten minutes. This, however, is a trifle less than the *average* time taken.

At some of the yards a small push cart on a wooden track is used, Fig. 4. Mr. Holtermann is greatly pleased with this arrangement, and expects to install a similar cart and track at each yard. At some of the yards the "democrat" is used for convey-

* I have learned since writing the above that Mr. Holtermann's entire crop this past season ran something over 80,000 pounds. One apiary averaged over 160 pounds to the colony; another, 150 pounds, etc. He fed sugar this fall at the rate of 5 pounds per colony.

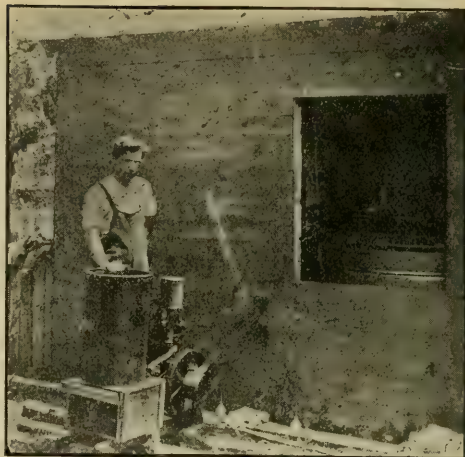


FIG. 2.—Gasoline-engine located outside the building, and belted to the extractor through a hole cut in the wall.

ing the honey up to the extracting-house. Fig. 5 shows the vehicle in question with empty supers ready to go back to the hive. Each extractor-house has an opening in the side through which the full and empty supers are passed to do away with the loss of time and greater danger of robbers caused

by opening and shutting the regular door.

THE UNCAPPING - CAN VS. THE CAPPING- MELTER.

Mr. Holtermann has never used a capping-melter, but has seen it in use enough to make up his mind that he does not want such an outfit for his own use. He figures that the capping-melter, while it melts the wax and separates all of the honey, requires much more attention than an uncapping-can, which time could be used to better advantage at something else during the height of the extracting. Furthermore, while the flavor of the honey need not be injured if the melter is properly constructed, yet the color is apt to be darkened slightly.

The uncapping-cans are shown in Fig. 1.



FIG. 3.—Mr. Holtermann and two helpers removing honey from the hives. One helper opens the hives and manipulates the smoker. Mr. H. shakes the combs, then holds them while the second helper with two brushes clears off the few remaining bees.



FIG. 4.—The supers of honey loaded on the car, ready to be pushed to the extracting-house. Mr. Holtermann is greatly pleased with the car and its wooden track, and he expects to install a similar one at each yard.

A perforated-metal basket, only slightly smaller than the can itself, but just two-thirds its depth, occupies the upper half of the can. There are two cans, one for each operator, and they hold enough for half a day's work. The cappings are frequently punched and stirred with a board so that they are comparatively dry when taken out and transferred to a barrel. Two barrels will hold drained cappings for the entire extracting at each yard. The honey in the bottom of the uncapping-can is run out into pails and lifted up into the main tank. Mr. Wm. Lossing, of Phoenix, Ariz., uses very much the same plan but goes a step further in that he has a hose leading from the bottom of the uncapping-can to the bottom of the extractor, so that the pump elevates the honey from both into the tank.

THE STEAM UNCAPPING-KNIFE.

As mentioned before, Mr. Holtermann has not used the steam knives until this year; in fact, he told me he had been rather opposed to them, but he finds them a great improvement over the cold knife. With the steam knife Miss Holtermann was able to uncap three combs per minute, and keep up this rate right along. At this speed I fail to see why any one should need an uncapping machine. There is not a machine that has ever been tried that will uncap all combs. There is a certain amount of hand work that must be done any way. Taking this into consideration, it is my opinion

that no machine will ever be built that will exceed the rate of three combs per minute. I know that, under the most favorable circumstances, when the combs are uniform and bulged, a greater speed than this has been made with a machine. I know, too, that the advocates of the uncapping-machine have suggested that the honey-producers must take more pains to have their combs uniformly bulged on both sides. However, when all is said and done, it is my honest conviction that the uncapping-machine will be no nearer perfection ten years hence. In saying this I am not trying to throw cold water on the efforts of any one. I merely believe, as I said before, that no uncapping-machine, *taking into consideration the best combs that the average producer will have*, will ever exceed the simple steam knife.

It takes three operators with cold knives to keep up with the twelve-frame extractor, and only two using the steam knife. Mr. Holtermann was having a little trouble because the water in the boiler evaporated so fast that frequent additions were necessary. I think his trouble was that the oil-stove used could not be properly regulated, and there was far more heat than was really necessary. With a stove that can be turned no higher than required, two quarts of water will run the knife half a day, so that the boiler needs filling only once in the morning and once at noon.

Fig. 6 shows a corner of one of Mr. Holtermann's yards. The hives are located in groups of four. In the fall, after the supers have been removed, the four brood-chambers are located in the winter case that Mr. Holtermann has described in these columns before. Fig. 7 shows the cases set at one side of the yard, ready for use again this fall. By this plan the labor of packing and getting ready for winter is reduced to a minimum, and the colonies winter perfectly. It will be remembered that Mr. Holtermann, formerly one of the strongest advocates of cellar wintering, now winters entirely on the summer stands by the use of these mammoth winter cases, each of which holds four twelve-frame colonies. A full description of these cases, how they are made, etc., is given on pages 693-696, Nov. 15, 1911.

Fig. 7 also shows a new-style cover. Mr. Holtermann likes these better than any other he has ever used, and he has had a pretty wide experience. The cover proper is merely a square pan, inside of which is loosely placed a rim or frame made of $\frac{7}{8}$ material. Fig. 8. Inside this rim are placed several layers of heavy strawboard. The layers of strawboard furnish an excellent protection from the hot sun, and also make a very warm cover in spring and autumn. The galvanized-metal roof, the corners of which are soldered, makes the whole thing waterproof. Of course, when the cover is removed ordinarily, the inside part is lifted off with the metal part—that

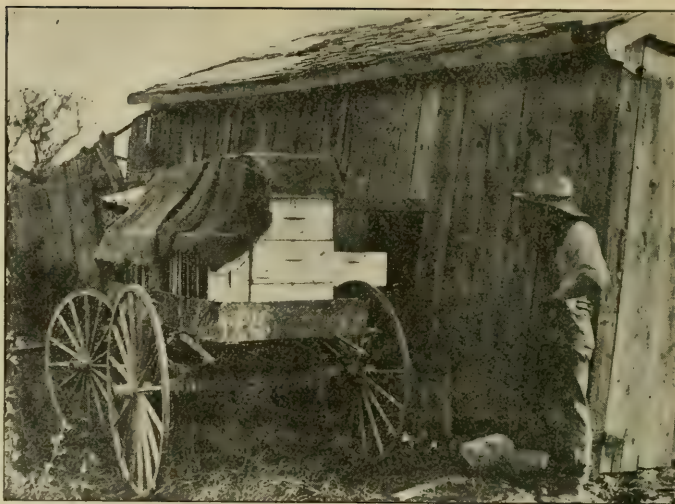


FIG. 5.—The "Democrat" used to carry supers to and from the extracting-house at the yards where there is no cart and track.

is, the whole thing comes off together. In the picture Mr. Holtermann has merely lifted up the metal part to show the construction underneath. A quilt is laid over the top-bars before the cover is put on.

Just as I was leaving I secured a picture of Mr. Holtermann, his son and daughter,

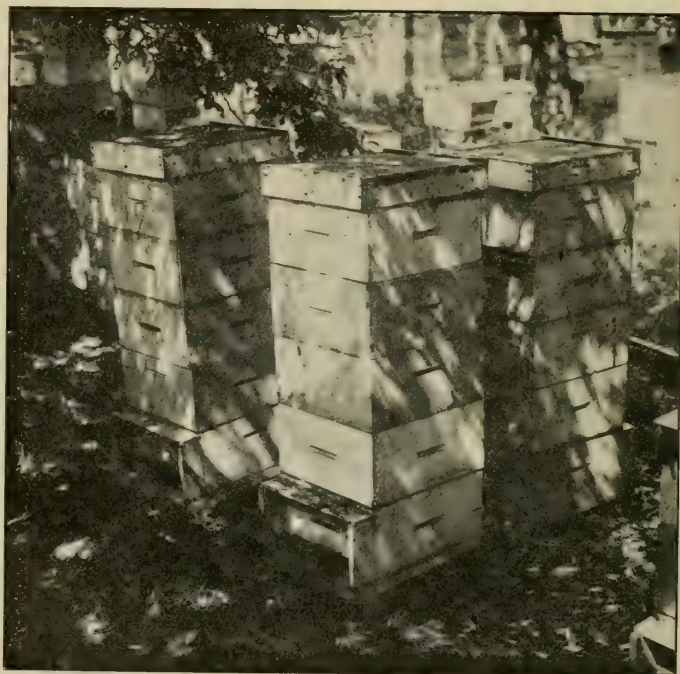


FIG. 6.—A group of four twelve-frame hives, three of which had four supers apiece. In the fall the four hives are moved a little closer together, and the winter-case shown in the next illustration is set down over all.



FIG. 7.—The large winter-cases piled at one side of the apiary, ready for use in the fall.

and his four helpers, the latter stopping for a moment just as they were starting for an outyard. Fig. 9. Mr. Holtermann may well be proud of his efficient helpers, and they in turn appreciate the experience they are getting in so short a time. For my part, I never enjoyed two days' work more than the two days last July when I, too, was a Canadian.

Continued in next issue.

THE STEAM-HEATED HONEY-KNIFE AND THE HONEY-PUMP

BY R. F. HOLTERMANN

Beekeepers should be more interested in hearing of something which will reduce the expense and trouble of the production of honey than in reading about great honey crops. That which reduces the cost of uncapping before extracting, reduces the cost of producing extracted honey. Especially during the time of extracting labor is scarce and high-priced in this locality. This applies particularly to skilled help for the beekeeper. Doubtless this is true in many other localities. Give me any thing which cuts down the help required in extracting, and I shall be enabled to "keep more bees."

When, some years ago, Mr. E. R. Root handed me a steam-heated honey-knife, telling me that I could try it and he would like to have my report, I thought to myself, "I can not be bothered with a knife having a rubber tube at one end to hamper and restrict the uncapper's movements." I thought, too, that the extracting-house was hot enough without artificial heat. Consequently the knife was put upon the shelf. Some

time after, I mentioned the matter to F. J. Miller, of London. It was late in the season, and he had some extracting to do. He asked me to send it to him, saying that he would try it. This made me feel that what was of no use to me should not be of much use to Mr. Miller; and, of course, what would or could be of use to Mr. Miller might be of use to me. However, the steam-heated honey-knife was not tried the following season.

By last spring, however, inasmuch as

there was much greater capacity for extracting I began to feel the need of something to assist in uncapping. I have had splendid help in uncapping; yet there was an apparent need of more help in this direction, so I ordered an outfit of steam-heated knives and one boiler having two outlets, to which to attach the rubber tubes



FIG. 8.—Details of the metal cover. The metal part is made like a large square pan with the corners soldered. The inside part, which is removable, consists of a rim filled with several thicknesses of heavy strawboard.



FIG. 9.—Mr. Holtermann and his force of helpers. Reading from left to right: Warren Munroe, Closson Scott, Glenelg Holtermann, Louise Holtermann, R. F. Holtermann, W. White, Walter Hull.

and knives. They came, we saw, they conquered. One uncapper can readily do in one hour what it required $1\frac{1}{2}$ hours to do before, and then leave the comb in better shape. More, for it tends to warm the honey in the comb, so that it extracts more readily. The honey also, being warm, separates from the cappings more easily. Again, where the honey has been taken off the hive and away from the bees some time previous to extracting, the honey is somewhat rewarmed.

For new combs or, rather, combs which are not strengthened by cocoons left by hatching bees, the steam-heated knife is best of all, and overcomes with the greatest ease difficulties of a real nature. Where the combs have been used in the brood-chamber the steam-heated knife can not melt the cocoons; but if the knife is kept sharp they can be cut as before by the unheated knife. We do not expect to use the cold knife in the future.

THE HONEY-PUMP.

With the intention of trying to reduce labor in extracting, I conceived the idea of pumping the honey from the extractor to the tank. The pump I had formerly tried did not work; and during the season of 1912 we ran all our honey from the extractor into a pail and dumped it into tanks six feet high. With one twelve-frame extractor this kept one man fairly busy; but since a proper pump has been attached to the ex-

tractor, and in a proper way, the pump does this work without any danger of running over on the floor or dripping, and this almost saves the labor of one man. These two changes have proved a great help to me in extracting.

We hope to have next season two twelve-frame machines run by one engine side by side, and expect to have our combs thoroughly dry when leaving the extractor, and at the same time be able to extract readily 1200 lbs. per hour.

Brantford, Canada.

REQUEENING WITHOUT DEQUEENING

Some Interesting Facts

BY ARTHUR C. MILLER

"Eyes have they, but they see not; they have ears, but they hear not."

In GLEANINGS for Nov. 1, 1913, page 747, near the top of the second column, appears the following: "'Why, the other day,' said our Mr. Marchant, 'by error I introduced by the smoke method a queen in a hive where there was already a nice laying queen. Would you believe it? they accepted the introduced queen and killed their nice layer! What do you think about that?'"

Evidently both Mr. Marchant and the editor did not think along the leading line. Right before their eyes lay bare one of the

most promising innovations in bee culture. It is this: *Requeening without dequeening*. I have been doing it for some time in an experimental way, trying to find the basic laws, for as yet I can not succeed every time. I am not sure as to what conditions are essential to uniform success, and hence have hesitated to say much about it. But the present seems to be an excellent time to broach the subject. The eye of the bee-keeping world is on the new method of introducing, and all its variations and possibilities will be discussed and tried out, hence I believe it wise to mention what I have so far done, even though the work is not complete.

In the past I have stated that it was possible to introduce a plurality of queens and have them all accepted, but sooner or later all but one disappear. Keeping a plurality of queens in a colony has long been a dream of many, as a way to have large colonies. Its practicability or wisdom is not now under consideration, but the subject is cited merely to recall what has been attempted, and show how very near to a new thing some of the experimenters came.

Permanent plurality of queens had proved impossible; but the fact that bees would even for a time tolerate a plurality of queens (not under supersedure conditions) suggested to me the possibility that perhaps a young queen might be given without removing the old one and have the former supersede the latter. It was easy to put in the new queen, but it was not always the new one that survived.

Why? Frankly, I do not know. But if it works properly in a few cases it will be possible to make it work at our pleasure when we learn the laws underlying their behavior.

At present my idea is this (and please note that I am only stating it as a working hypothesis, that others may take up the work with me): A young queen light in eggs easily overpowers an older queen heavy with eggs. Also, such a young queen usually conquers an old and failing queen. If such proves to be always true, we have only to introduce an active queen light in eggs to a colony when its queen is heavy with eggs to have the desired supersedure take place.

Now, note this: A queen once safely in is safe until she meets the other queen. The more nimble queen usually wins; but sometimes, when perhaps queens are about equally matched, the bees take a hand, and then results are impossible of forecast, and either queen may be the victim.

The problem then is to ascertain the best age and condition of the new queen, and the

most favorable conditions in the receiving colony. Perhaps some day we may find *requeening without dequeening* simple at any time; but just now the conditions above set forth seem necessary, and even then the results are not uniform.

Providence, R. I., Nov. 10.

[Our correspondent may be on the right track. We believe he is correct when he says that "a queen light in eggs easily overpowers an older queen heavy with eggs." We have noticed this time and time again. In the same way, an interloping virgin—that is, one going into a hive by mistake, where there is already a laying queen—will in most cases supplant the reigning mother, for the very reason that Mr. Miller states.

We believe, also, he is right in saying that "a queen once safely in is safe until she meets the other queen." We have seen not a little corroborative evidence of this—so much so that we have come to believe that, when there are two queens in a hive, the bees rarely take a hand in the fracas between the rivals. They allow the rule of the survival of the fittest to work out, for "to the victor belong the spoils." It is a well-known fact in apiculture that two colonies may be united, each having a queen, without paying any attention to either queen unless there is a choice; but a further examination will show only one queen in the hive. It is probable that the rivals "settle their differences" by one killing the other. A royal combat between queens does not end like a duel between two men, both being injured or possibly killed, but in the case of queen bees it is simply a case of death to one without injury to the other.

We are glad that Mr. Miller has presented the case, even though he is not at present sure of his premises.

The following article touches on a phase similar to the one just preceding.—Ed.]

REQUEENING WITHOUT KILLING THE OLD QUEEN

Two Queens in the Hive for the Fall Work

BY J. B. MERWIN

The requeening of our hives without killing the old queen is a method we have practiced in our yards for some time, and find it superior in a good many ways to the old style of requeening. In taking off our supers or upper stories for the last time early in the fall or late summer we often find a few hives, which, for various reasons, we wish to requeen. The queens in these hives may be old ones, others may not be doing good work, and some we wish to requeen for bet-

ter blood, etc. Now, as the honey-flow draws to a close, and while there is still some honey coming in from fall flowers, we go to these hives that we wish to requeen and cage the queen of each hive. We make a note of this, and on the third day from the day we cage the queen we go to the hive from which we wish to requeen and take out a small piece of comb containing larvæ of the desired age. With this wrapped in a piece of cloth we go to the hive containing a caged queen. On opening this hive we find already started several queen-cells, each containing a larva and plenty of royal jelly. We now destroy all queen-cells excepting two or three nice ones, or as many as may be desired to leave, and with the transferring-instrument pick out the larva from these and transfer the larva from the piece of comb from the breeding queen. We next put back the frames, liberate the old queen, close up the hive, and when opened again in a few weeks one will be surprised to find two queens laying, sometimes on different combs, and again you will find them both on the same side of one frame.

This plan will work well on all queens two years old or over. We have not as yet tried superseding yearling queens by this plan. The old queen will not tear down the cells as supposed. Queens reared by this method are the same as queens reared by natural superseding (at least they never fight, and I never heard them quarreling).

You will find this method superior to the old in more ways than one. Your hives are in no danger of becoming queenless, or the bees balling the queen when introduced. The queens are seldom lost in mating. Nine times out of ten you will find the two queens in the hive when you open it.

I presume that a queen-cell with a larva several days old could be introduced in place of transferring the larva, but we never gave this a trial.

At the present time, Sept. 8, we have several hives with two queens, and we expect to requeen a few more yet this fall, as we have a late fall flow of honey here from wild thyme.

To make the above plan a success you must be sure to destroy all queen-cells and cups excepting those you have transferred the larva to. With strong colonies we shake the bees from the frames. This gives one a chance to find all the cells.

Prattsville, N. Y.

[We believe Mr. Merwin has struck on an excellent plan for superseding old queens. It might work in the case of a yearling, but we doubt it. This will be worth pasting in the hat and trying out after the harvest next year.—ED.]

SKETCHES OF COLORADO BEEMEN

BY WESLEY FOSTER

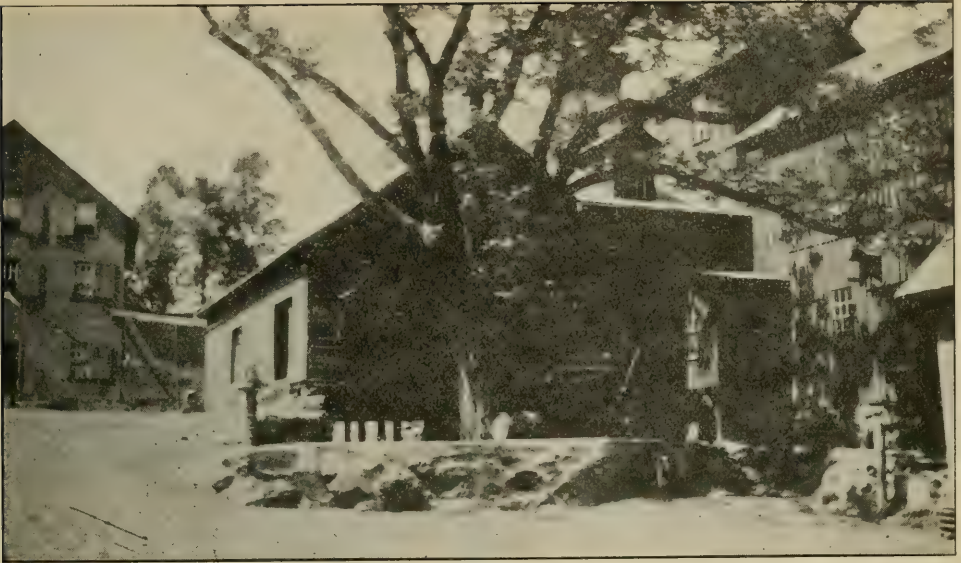
HARRY CRAWFORD

I think it was in 1898 that father took a one-horse wagonload of comb honey to the city of Denver. I was allowed to go along to see the wonders of the great city. About half way between our home and Denver is a little station called Broomfield. There was there at that time a postoffice and store combined, a creamery, and a railroad station. Two or three houses made up the remainder of the village. A low white cottage set among a small clump of trees disclosed to our view a neat little apiary at the rear of the grounds. Close beside the house, but abutting upon the street, was the postoffice and store of the village. As father always enjoyed the association of beemen we decided to stop and water our horse and get some crackers and cheese for our lunch.

We met a quiet, unassuming young man, slight of build, about average height, and perhaps thirty years of age. This proved to be our first acquaintance with Harry Crawford, who was running the store and postoffice and caring for bees on the side. His apiary consisted of perhaps fifty colonies in neatly painted dovetailed eight-frame hives. Order seemed to be in evidence everywhere, and an absence of hurry and rush was another factor noticed. Mr. Crawford had not been married very long, and told us he was increasing his bee operations as rapidly as possible. In a short time he hoped to drop the store and postoffice business and use the room for a honey-house and shop. At that time he had one or two hundred colonies rented from others that he was operating on shares in outyards. In this way, by getting half the swarms he was steadily increasing his own numbers. His health had not been good for a number of years, and soon after our first meeting he began taking his family to California for the winter, where living is so delightful, and his health improved greatly.

Comb honey is Mr. Crawford's sole production, and the economy and systematic management of his work makes it possible for him, although not a robust man at all, to care for five hundred to seven hundred colonies with a small amount of help. Mrs. Crawford, of course, helps, and, I believe, some winters she has put together most of the sections. Miles, their oldest son, who is about twelve, is a great help to his father in the apiaries.

Mr. Crawford has all supers, about $3\frac{1}{2}$ to each hive, filled and ready during the winter. All hives for increase are nailed and painted in readiness. During March



The birthplace of the Langstroth hive at Lyonsville, Massachusetts.

the apiaries are each year gone over, and any colonies found in a weak condition are placed on top of the strong colonies. No further attention is given to the bees till May, when heavy breeding begins. Stores are then equalized, if necessary; but little fussing is done with the bees to encourage quick breeding.

Clipping queens' wings is not practiced. Mr. Crawford inspects bees for swarming tendencies by lifting the hives up from the bottom-boards and looking for cells. By cutting cells and giving adequate surplus room and ventilation, swarming rarely causes any trouble. Colonies that persist in swarming are divided.

Foul brood is not tampered with. Hive, comb, honey, bees, and all are burned in a deep hole, and the ashes covered. Mr. Crawford has had very little foul brood to contend with.

All of Mr. Crawford's dealings are performed with deliberation. He bought an eighty-acre farm at \$50 an acre, and the bees paid for it in a few years. About a year ago he sold the farm for \$125 an acre. This has helped him to get well established where an occasional honey-crop failure will not seriously affect him.

Mr. Crawford has been a stockholder and director in the Colorado Honey-producers' Association from the first. He has the second Rauchfuss combined section-press and foundation-fastener that the Rauchfuss brothers made, and has used the machine every year. Several hundred thousand sec-

tions have been put together and started with it.

I have been told that, during the rush of the summer's bee work, when most beekeepers are working early and late, Mr. Crawford will lay off a day every little while and take his whole family to see a show. He told me that this year, when he harvested nearly a carload of comb honey his apiary work would be finished early on Saturday of nearly every week, and he would have the larger part of the day for rest.

Other beekeepers have made more money some years, but I doubt if any one in the Rocky Mountain region has averaged more year after year, and accomplished it with less stress and worry, than has Harry Crawford.

Boulder, Col.

THE BIRTHPLACE OF THE LANGSTROTH HIVE

W. W. Cary and L. L. Langstroth; Apiary and Business of Earl M. Nichols

BY E. R. ROOT

When bee culture in the United States was in its early stages in the late 40's, there was a galaxy of brilliant men who were interested in bees. First and foremost we should, without question, name L. L. Langstroth; then Moses Quinby, Samuel Wagner, Richard Colvin, Adam Grimm, Roswell C. Otis, and last, but by no means least, W. W. Cary, of Colerain, Mass. Up in the hills of Massachusetts, in Franklin Co., Mr.



A part of the vinegar-plant and home of W. W. Cary & Son, Lyonsville, Mass.

Cary began keeping bees. By a very fortunate combination of circumstances Mr. Langstroth, then principal of a ladies' academy at Greenfield, Mass., got in touch with Mr. Cary at Colerain. Langstroth was developing his hive, and needed a practical man like Cary to test it. While in West Philadelphia Langstroth had been studying Huber, and he had learned much from that wonderful naturalist, who, although he had no eyes, saw far more of the mysteries of the hive than any who had preceded him. Although he felt much indebted to this prince of investigators, he saw that the Huber leaf hive was too crude to yield practical results. But crude as the hive was, Huber was able to separate fact from fiction. These he later gave out in a series of remarkable letters to his friend Charles Bonnet. This series, for accuracy of observation and a general fund of information regarding the habits of bees, has never been surpassed. Indeed, it may be said that Huber furnished the fundamentals of modern scientific bee culture; but it remained for Langstroth to develop a hive and system that would place beekeeping on a practical and commercial basis. How natural, then, that he should seek out a man like Cary! It seems that various models of his hive were made in the Cary workshop. These hives were then placed in Mr. Cary's apiary to be tested out.

If we could do the paradoxical thing of reading between the lines of unwritten history, we should probably find that W. W. Cary was the mechanic who furnished Mr. Langstroth not only skill but a shop in which to perfect that wonderful hive that

made it possible to remove any one comb without interfering with any of the others, and without the necessity of slicing any comb from the inside of the hive itself.

At all events, it was after Langstroth left the Cary workshop that he patented his hive and his book. This was published in 1853, a reprint of which will soon be ready for the public. How much of value Mr. Cary himself contributed to the success of the invention we do not know and never shall. When we visited Earl M. Nichols, a son-in-law of H. F. Cary, this very workshop was still in existence, and at the time of our visit it was standing without alteration as in the days when Langstroth graced it with his presence. Unfortunately we had only a small kodak with us. Eagerly we pressed the button, and here it is. The building, we understand, has since been removed to make room for a building of greater capacity for the growing business of W. W. Cary & Son and the son-in-law, Earl M. Nichols.

As has been done many times before, Herbert F., the son of W. W. Cary, took up the work of his father and built up a magnificent business in the manufacture of pure cider vinegar, for it seems the senior Cary produced honey and vinegar; and while the junior Cary continued both lines of business he appears to have transferred the beehive to his son-in-law, Mr. Nichols. In the mean time Mr. Cary devoted all his time to the vinegar business until he had a plant that is one of the largest and best in the United States. There may be larger vinegar-factories, but probably none whose production is confined entirely to a product from the juice of the apple.

The side hills all about Lyonsville (a short distance from Colerain) are peculiarly favorable for growing apples, and they are frequently found growing there in their wild state. The modern apple-grower knows he must have, in order to get the best results, what he calls "air drainage" as well as water drainage. These hills are well adapted to both, and hence we find immense quantities of apples are produced naturally and in a cultivated state all over this part of the country. Indeed, this vinegar-plant has developed a demand for apples, so that more and more are being produced.

We found a beautiful home on the side hill, the factory buildings in convenient reach, and a new up-to-date private water-works plant drawing water from a lakelet higher up on the hill. Mr. Nichols, the bee-man, is certainly a live wire. He is engaged, not only in the production of honey, but in the sale of beekeepers' supplies, and during the off season helps out in the vinegar business. It is but natural that he should continue the supply business, because the senior Cary was an expert maker of foundation and a queen-breeder. Langstroth said of him, in a glowing tribute which he paid to his friend in *GLEANINGS* for 1886, page 11, that he was the first man to send a queen across the ocean in a single-comb nucleus with a few workers. No small wonder that he should find that he was the man to help him perfect his hive.

The apiary of E. M. Nichols, with Mr. Nichols in the foreground, is shown on the front cover page of this issue. The first real Langstroth hive that was ever made was placed in this apiary in the very spot where Mr. Nichols is sitting. This apiary certainly enjoys a distinction that no other apiary has or can have. The more distant view shows the home poultry-house and the beeyard over to the extreme right. The whole plant in all its details shows the result of splendid business management. The presiding genius of the whole, Mr. Herbert F. Cary, seems to have the faculty of casting his mantle on his sons and son-in-law. At any rate, they have the business so well organized that they turn him out to grass, as he says—that is to say, he and his wife go to Florida every winter.

NEW FOUL-BROOD LEGISLATION PROPOSED

BY H. E. HARRINGTON

On page 138, March 1, the editor of *GLEANINGS* tells of a tramp beekeeper spreading bee disease, and speaks of making laws to control the situation. Well, there are many beekeepers who are not

tramps, but farmers, who are doing just as bad if not worse work than this tramp, because their name is legion. They do not pretend to know much about bees, but just keep a few for honey for their table. Their colonies may be reducing each year, but they seem to find a way to account for it, and declare they have no foul brood. They seem to think that if bees have foul brood they will find something in their hives as big as a fire-log.

The inspector is generally handicapped for funds to pay for the work. With all the laws we have, bee disease has increased throughout the United States as a whole.

While in Washington and Oregon I became convinced that a compulsory law would have to be made before the bee-disease situation could be controlled, just the same as those States made compulsory spraying laws, by virtue of which a person must spray his fruit-trees, or cause them to be sprayed, or they would be cut down. This law controlled the situation; and the result was perfect fruit that brought high prices.

I will propose a new law, that a person to keep bees lawfully must have a legal permit to do so. The State Beekeepers' Association should have rules compiled or sanctioned by the Bureau of Entomology, Washington, D. C., saying just what treatment a healthy colony of bees should receive in a diseased locality—viz., inspection. The said association might propose certain persons appointed in certain places as most convenient to grant permits, and the governor of the State would appoint them. These rules should be so compiled that the applicant, on signing them, agrees to them, thus making a contract with the State or county. Literature telling how to detect and recognize said disease or diseases, and the treatment for the same, with a lawful permit to keep bees would be given to the applicant, and a small fee charged. If the applicant wants assistance the office could furnish it; but the applicant should pay a fair sum for the work.

The office should see that he keeps his contract, and if any old neglected cases of disease were found among his bees he should be fined for each case so found. This would go to the office.

If a person refused to obtain a lawful permit the State could prosecute him and fine him, both spring and fall, for all colonies so kept.

These, in brief, are the main points of the law I would propose made. Of course, changes could be made in it as might seem necessary. The old laws would then be canceled. A small appropriation should be

made by the State. It seems to me that this will control the bee-disease situation perfectly; and as it would be a matter of record, statistics could be quickly and accurately made.

Lyndon, Vt.

MAKING THE MOST OF INSPECTION

Better to Spend Funds for Education

BY FRANK C. PELLET

In States where beekeepers have not already secured the desired legislation it is very important that they start right and thus save the annoyance of having to make a second fight to secure better laws. Each State seems to have different laws, and every inspector seems to have a different plan. It is almost impossible to secure a sufficiently large appropriation to do thorough inspection work over the entire territory where disease is present in any State. That being the case, educational work is even more important than the actual inspection. After two years' experience as State Inspector I am fully convinced that it would not be wise for the State to expend the necessary amount to inspect all diseased colonies, even though a legislature could be induced to provide the funds. In my opinion it is better to provide an amount sufficient to meet all emergencies, and to expend the greater energy in educational work.

In this State the inspection work is in charge of an official who is designated "State Inspector of Bees," with power to appoint deputies. The term of office is two years, and the inspector is appointed by the Governor. It thus becomes a political appointment. Fortunately, so far no friction has developed between the Inspector's Department and the beekeepers. The beemen have been uniformly friendly, and have rendered every possible assistance in finding disease, either in their own apiaries or those of the box-hive farmers who permit a few colonies to remain in some out-of-the-way corner. Iowa is also fortunate in having a governor who is not inclined to ask any questions about a man's political affiliations when making appointments of this kind. There is danger, however, in making an office of this kind a political appointment; for in many cases the office is filled rather because of political connection than personal efficiency.

Last year I became convinced that our present plan was not the best, and accordingly recommended that the work be placed in charge of the State Entomologist. A bill was accordingly introduced in the lower

house with that end in view, and I was called before the committee in support of it. The thing looked so reasonable to me that I expected it to pass, and prepared to turn the work over to Prof. Summers, and expected to be relieved of further responsibility in connection with the inspection. The bill, however, was defeated in committee by one vote, and I still hold the job. There was some fear expressed that, should this work be added to the Entomologist's other duties, it might suffer because of being placed in the hands of incompetent men. Those who know Prof. Summers and his thorough manner of dealing with every thing placed in his charge had no fear on that score.

If I were planning a campaign from the beginning in a State where no laws had already been passed I would begin by working for the establishment of a school of beekeeping in connection with the State Agricultural College and the inspection work in connection with the school. It is difficult to get high-grade men for a few weeks in the spring and summer for the amount available. If the same men can be employed during the fall and winter months in the college it will be possible to get the best talent in charge of our bee work, and to keep them employed throughout the year. Too much importance can not be placed on the work of the college in class work, bulletins, and extension lectures in the farmers' institutes.

In States where nothing is being done for apiculture at the agricultural college, nothing is to be gained by placing the inspection of bees in charge of the entomologist, as at best it will be a matter of secondary consideration with him.

Here in Iowa we are working for the establishment of a department of apiculture at the Agricultural College, with the idea that the inspection work will ultimately be combined with educational work in charge of this department, all of which will naturally fall under the supervision of the Entomologist.

Atlantic, Iowa.

CONDITIONS UNDER WHICH SWARMS MAY CARRY FOUL BROOD

BY GLENWOOD BEARD

With reference to footnote on p. 734, Oct. 15, in answer to J. E. Battram, of Ontario, Canada, I would say that swarms from colonies infected with American foul brood *do* carry with them honey which is diseased, and a number of times I have seen the dead larvæ in newly built combs drawn from full sheets of foundation.

This question, in my experience, depends wholly upon the time of year and season. In a season giving a good honey-flow and during or immediately after such a flow, a swarm seldom carries disease with it sufficient to show when hived in full foundation sheets, while in a moderate or slow honey-flow, where colonies are badly infected with disease, I have known swarms to carry disease which would show in the first set of larvæ in new combs drawn from full sheets of foundation. A colony showing but a few infected cells where disease is just beginning to develop is not to be considered in comparison with a colony in the advanced stage.

A swarm from the one showing but a few cells can safely be given full sheets of foundation unless it is previous to or long after the main honey-flow.

I had ten years' experience in keeping my apiary at home free from American foul brood. A number of my neighbors had a few colonies of bees, and we all knew that the malady was lingering about, but no one seemed at all alarmed about it. I had a hard fight in making some experiments. I was defeated, as disease was so general I didn't know whether my plans had been given a fair trial.

An apparently healthy swarm hived on one-inch starters, a swarm which has built a set of combs completely, and has honey and healthy larvæ, may become diseased at this point, because a swarm from a diseased colony united with the bees in question, the trouble showing up in about two days.

I do not think the Quinby treatment and shaking of a diseased colony upon full sheets of foundation can be favorably compared. A swarm under normal circumstances can stretch foundation in full sheets, with the addition of wax produced by the bees themselves in 24 hours. They deposit some honey, but that length of time is not sufficient for them to consume all the honey they carried.

The Quinby treatment is to build from the start, using only the wax produced by the bees, resulting in the greater production of wax, and more time taken to stretch cells sufficiently to deposit honey.

Barberton, Ohio.

AMERICAN FOUL BROOD

BY A. C. GILBERT

After keeping bees over 35 years the first case of foul brood I ever had or had seen was in the summer of 1910. I had read descriptions and had seen illustrations, and realized, as soon as I looked at a comb, that

it was a typical case. The combs were completely filled with dead and filthy brood, and a very offensive odor was soon detected. After trying the test of seeing if the dead brood was stringy I knew for a certainty it was the American variety.

I decided to find out how it found its way into the apiary. Besides the colony so badly affected I found seven others with a few cells in some of the combs. I then knew that the one colony so much worse than the others must have been affected the year previous. It was a colony with an Italian queen I had bought. That was where the trouble began. I introduced the queen in the cage it was sent in. At the present time there would not be any risk to run, since the candy the cages are supplied with is supposed to be free from all germs. The safest way, however, would be to introduce in a new cage. I said to myself, "I have a job on hand to keep it from spreading."

My first move was to contract all entrances to hives that were affected. I shook the bees of the badly diseased colony off the infected combs on combs of solid honey (except one or two empty combs). Any old combs not perfect, that are free from disease, will answer to catch the honey the bees may deposit for the first day. Then remove and melt up.

The other seven colonies I treated the following spring during a fine flow from the willow, dandelion, etc. The bees were shaken, or, if the nectar was thin, brushed on frames of foundation and one or two empty combs to be disposed of as aforesaid. If they lacked honey before berries and clover yielded they were either fed syrup or supplied with combs of honey. That was the last seen of foul brood in our apiary, and now it is completely wiped out. I think the sooner the disease is discovered in an apiary the better, for it is so much easier to get under control before it spreads.

If inspectors would look after the careless beekeepers (those not up to date, and who never think of looking into a brood-chamber), I think it would soon be annihilated. To sum up, if colonies are weak and badly diseased, destroy them before taking any chances of their being robbed. Leave no honey around to start robbing. Keep entrances contracted, which will often prevent robbing. If a colony is found affected, look over every one in the apiary to know for a certainty whether it is affected or not.

Honeoye Falls, N. Y.

[Instead of shaking on old combs we believe it is far safer to shake on to starters, so that in building comb the diseased honey may be used up.—Ed.]

FEEDING SUGAR SYRUP

BY J. E. HAND

One often hears it said that a pound of sugar syrup, well ripened, and stored within the combs, is the equal of a pound of good honey as food for bees. While I am not in sympathy with the assertion, yet, taken in the abstract, it may, perhaps, be near the truth. Considering the interim, however, the statement is misleading in the extreme. Indeed, if the life-history of the bees, and its relation to the evaporation and inversion of thin syrup were better understood, there would be less talk about the value of sugar syrup as food for bees. Not so very long ago many were advocating sugar syrup as a cheap and effective substitute for honey as food for bees. Some even went so far as to exploit methods and systems to compel the bees to store their honey in the sections in order to enable them to realize a handsome profit by substituting sugar syrup as winter food at half the price of honey.

The delusion was far-reaching and wide-spreading, but it finally became evident to a few that the profits were coming out of the small end of the horn, and it became painfully evident, from the lost vitality and premature death of the bees that inverted the syrup, that its effectiveness did not extend along the lines that harmonize with the financial interests of the beekeeper or the welfare of his bees. I was forced to this conclusion as a result of an extensive experiment conducted with the view of ascertaining results along other lines; but it was equally effective in enabling me to ascertain the effects upon bees resulting from long-continued feeding of thin sweetened water, comprising a solution of 8 to 10 parts of water to one of sugar.

This feed was given in the open, and the feeders were refilled daily from the middle of July to the middle of September, and required the use of a considerable quantity of sugar. The bees took the feed readily, and without any excitement or quarreling, and whenever the feeders became empty they would quietly go about their own business, and there were no robbers nosing about. Indeed, so far as external conditions were concerned, the process seemed to have about the same effect upon the bees as a natural harvest; for I could handle them without smoke, and leave the hives open, and combs of honey exposed, without any attempt on their part at robbing, notwithstanding there was a dearth of nectar during the entire period. The external conditions were so highly satisfactory that I

became quite enthusiastic concerning the artificial honey-flow.

Since this was the main point concerning which I was seeking information, I contented myself with external observation only. Finally, however, I made an examination of the conditions within the hives, expecting, according to theory, to find every thing booming, with plenty of brood and bees; in short, I expected to find conditions about the same as during a continuous mild flow of nectar from natural sources. My expectations were not realized, for the examination revealed conditions of a far different nature than I had hoped for and expected; for while the combs were well filled with seemingly well-ripened stores, evidently the ripening process had a deleterious effect upon the bees, to the extent that in each, and every case the colonies were greatly depleted in numbers, and unmistakably betokened weakened vitality and premature decay of vital tissue. The condition of the brood compared favorably with that of the bees, and was away below normal, as represented where no feeding was practiced.

Notwithstanding these colonies were placed in winter quarters exactly the same as I have practiced for a quarter of a century, with practically no loss, more than half of them were dead before the first of February, and the remainder died before spring. There was no indication of dysentery nor distended abdomens nor fermentation of the stores, and the bees were an exceedingly hardy strain of straight three-band Italians. They were perfectly healthy at the beginning of the experiment. The feed was composed of the best grade of fine granulated sugar obtainable, mixed with pure water in the ratio of eight or ten parts water to one part of sugar. Not being qualified to form scientifically correct deductions based on the results of chemical analysis, I could only reason from analogy, based on the results of external observation and comparison in a general way.

Reasoning thus, all the evidence visible pointed to a loss of vitality and premature death resulting from long-continued and incessant labor of a very exhausting nature in expelling the excess of water from the feed, which can be performed only when bees are on the wing. Hence two months' feeding of so weak a solution would necessitate a flight of hundreds of miles during the season when bee nature demands relaxation from excessive activity, which undoubtedly accounted in a great measure for the general lassitude and worn-out condition of the bees. This theory is supported by the fact that the life-span of bees hatched too late in the season to assist in honey

production is incomparably broader than where the conditions are reversed. While this theory concerning the method of expelling the excess of water may be regarded by some as unorthodox, it can be verified by external observation, and, undoubtedly, by a correct knowledge of bee anatomy.

I was also led to this conclusion by the result of subsequent experiments, where the density of the feed was increased to a ratio of $2\frac{1}{2}$ parts of sugar to one of boiling water. Several colonies were included in these experiments, and on several occasions, with similar results. The fact that this feeding was done for another purpose did not change the results. In this case feeding was continued during the same period, and the bees were given all they would take from a feeder under the hives. An examination of the internal conditions within these hives at the close of operations showed a marked difference in conditions. Some colonies evidently had extra-prolific queens. These seemed to be in a perfectly normal condition with plenty of brood and bees. While others, apparently having less prolific queens, coupled with the habit of Italians to store honey in the brood-chamber, resulted in the diminution of brood, hence a dwindling of the working force was noticeable. Since this was evidently due to crowding out the queen by long-continued heavy feeding it proved nothing.

In an article on page 729, October 15th, by J. A. Heberle, B. S., of Bavaria, Germany, he quotes Dr. U. Kramer, an eminent scientist of Zurich, Switzerland, to the effect that the weakened vitality resulting from feeding sugar syrup is due to copious drafts of albumen from the body of bees while inverting it. Since the evil effects resulting from the feeding of thin sweetened water are far more sweeping in their devastating effects than is found in the feeding of syrup of greater density it is evident that such a practice, if carried to any considerable extent, will not be without its deleterious effects upon the bees as well as upon the following honey crop; for in view of this convincing evidence no appreciable harm will result from the feeding of sugar syrup of a proper density in any quantity. In my estimation the proper density of sugar syrup for feeding bees under all conditions is $2\frac{1}{2}$ sugar to one of water (boiling).

In view of the disastrous results that are likely to follow the injudicious feeding of half-and-half sugar syrup, as usually practiced, undoubtedly the inexperienced will find it to their interest to refrain from feeding sugar syrup, except as a last resort, to recuperate depleted stores. Personally I prefer solid sheets of candy molded in wired

frames while hot, and placed one on each side, close to the brood-nest. If left too long, however, the candy will be consumed, and combs built in their stead that will be likely to comprise a large percentage of drone-cells. It may be in order to state further that, in conducting these experiments, in every case ample provision was made for storage above the brood-chamber.

Birmingham, Ohio.

HONEY SHIPPED SUCCESSFULLY BY PARCEL POST

BY C. W. DAYTON

Dr. Miller's experience, as stated on p. 333, May 15, and Dr. Moody's experiments as given on p. 653, Sept. 15, do not agree with my experience in shipping extracted honey by parcel post. I have shipped about 300 parcels, and have had but one leakage, and that happened where I put up three 12-oz. soldered cans in a sack loosely, without any other packing material for protection. And even then I believe the tin would not have loosened if it had been soldered as strong as it ought to have been. In soldering there should be enough solder put on to fill the groove nearly, not merely enough to stop the crevice. For 12 or 16 oz. tins I take 14 sheets of common newspaper, 12x8 inches, and wrap it around the long way and fasten with a piece of wire. Then I wrap four of these packages in another heavy wrapping paper and rope them tightly in all directions, twisting the twine at every crossing. I then put on the tag, and the package goes safely. Gallons and half-gallons I am sending out by mail nearly every day, and the recipients write me that there is safe and sound arrival.

The cans should completely fill the box. The gallons and half-gallons are the round-cornered square cans boxed with wood. They have $\frac{5}{8}$ ends and $\frac{1}{4}$ -inch sides, thoroughly nailed. Then I wrap around each end a strong wire and twist it up tight with pliers. Then another short piece is put on for a handle. I also paste on the box my honey price list and a red label giving directions to handle with care. The postmaster also puts the packages in a special sack intended for fragile packages. Beekeepers should look after these affairs when mailing honey.

I have shipped these packages up to 10 lbs. to all parts of the United States and several foreign countries, and have complimentary letters from the receivers of the honey from these distant countries on the safe arrival of the honey.

The finest thing that has happened to bee culture in many a long year is the

parcel-post mail privilege. Beekeepers should appreciate it, since we were so long in getting it.

Owensmouth, Cal.

IS IMMUNITY TO POISON FROM BEE-STINGS INHERITED?

BY W. A. H. GILSTRAP

Neither Mrs. Gilstrap's parents nor mine ever worked much with bees. She has worked with them a good share of the time for 20 years, while I have worked with them for 23 years, which means we were both inoculated with the poison of bee-stings quite a while before we were married, which was 17 years ago. Most of our early work was with the ordinary California mongrel bee called hybrids. They can sting. In her early experience Mrs. Gilstrap was stung half a dozen times one day, which caused her to "break out" as if she had hives, and she was quite sick. In two days she was able to be up and tackle bees again.

Now, you might hunt a while before you would find a woman who likes to work with bees as well as Mrs. Gilstrap, or one who can stand stings as well.

In my early experience with bees the stings were so painful and left so much soreness that I seriously contemplated quitting; but the fascinating nature of the business perhaps had more to do in keeping me with bees than financial considerations did, till I became fairly immune to the poison.

A bee-sting has never been serious with any of our eight children. The most remarkable one of the children in this line is our youngest boy, Percy, who got over a hundred stings above his shirt collar at one dose before he was three years old without any very serious results. Perhaps an account of that affair would be of interest to GLEANINGS readers.

The apiary was south of the house, perhaps 40 to 70 yards, with bamboo on the west and north sides. The south part of the apiary was occupied by scrub bees which I had bought and brought home, killed the queens, and replaced with ripe cells of good Italian stock. From the house I passed along west of the bamboo and entered the apiary at the southwest corner, passing out of the apiary at the northeast corner, in the vain search for a possible swarm. I turned off the road to care for a horse before returning to the house. At the southwest corner of the yard one of those black (or nearly black) bees stung me on my head.

As Percy afterward told us, he followed me through the apiary by sight and could not have been far from me. He passed me

while I was caring for the horse; but I did not see him nor hear him. His mother later noticed that he seemed fretful, and told him to go to bed, which he did, and then he called for a drink. Before the water could be brought from a pump in the yard, he got a cup to get a drink, then said, "Mama, bees hurt me."

"Where?"

"On my head."

She called me at once, and we commenced scraping the stings from his neck, face, and head, where they were closely and rather evenly stuck. His hair was quite short. After removing 35 stings with a dull knife it was clear that I had not removed a third of them while Mrs. Gilstrap was busy on the other side. He cried a little then, and twitched, which made us fear spasms. We put strong soda water on him, gave a little diluted whisky, and phoned from a near neighbor's to a doctor less than two miles away, and took some ammonia back, which was applied where it would do good, but could not apply it in the nose and on the eyes where the stings were as thickly placed as anywhere.

The doctor said we had done about all he could have done. While he is opposed to intoxicating beverages as much as we are or can be, he said the whisky would tend to prevent spasms; but if spasms were once commenced, whisky would make them worse. The face was somewhat swollen for a day or two, and for several days there were dark spots, much like those left from measles. He lost a few hours' play from the encounter.

About two weeks later several of the children were with me with hands, faces, and feet bare, in the Italian part of the yard. Percy got a sting on the foot, probably from stepping on a bee, when he said, "You old bad bee!" then complacently laid down and went to sleep near the hive.

Modesto, Cal.

GIVING BEES A FLIGHT IN MID-WINTER

Providing a Cage in a Warm Room for Emergency

BY DANA F. DOW

I was much interested in Mr. Whitten's article, p. 182, March 15, and your editorial comment on it, p. 170. I have done some winter manipulation of colonies, not for the purpose of breeding them up, but to give needed flights and supply sealed stores.

Winter before last, very cold weather set in the first of December, with the temperature frequently at or below zero. About the middle of January there were indica-

tions that some of my colonies were suffering from dysentery. The fall honey here is principally from asters and goldenrod, and contains considerable pollen, so that bees wintered on it need several flights during the winter.

As there was no prospect of mild weather I cast about for some way of giving the bees in the affected hives a flight. Accordingly I made a framework three feet square and four feet in height, and covered it with common blue mosquito netting. On one side the netting was left very slack and long, and not tacked to the bottom of the frame, thus providing a place to pass a hive and tools or sealed combs into the cage. On the same side two holes were made in the netting, and a pair of bee-gloves were sewed securely to it. The cage was put in the dining-room before a large sunny window, with the slack side turned away from the light.

Sitting on a low stool I was enabled to open a hive and give the bees a flight, supply sealed combs of honey, and perform every manipulation as easily as in summer, and all without a bee escaping.

Before putting a hive in the cage I placed a layer of old newspapers on the bottom, and when the bees came out for a flight the discharge of faeces was something amazing in quantity, to say nothing of odor.

The hive-cover was left partly off; and when the bees were tired of flying, some of them would find the hive and set up a call and attract their companions. By covering the top of the cage with a thick cloth, and allowing the light to shine only near the entrance, all the bees would crawl down and find the hive. Several colonies were short of stores, and I supplied them with sealed combs by this method.

After giving the bees good flights for two days, the next evening I confined them in the hive with a piece of wire netting, and then set the hive in a cold room for a day to give them time to re-form their winter cluster. The next evening I put them back in the outside case on the winter stand and removed the wire netting.

One colony furnished a surprise. It was only a three-frame nucleus in a thin box, and had been left outside and simply covered with old carpeting and boards. As there were no signs of life about it I concluded it had succumbed. However, when the box was put in the cage, and the cover removed, it proved to be literally crammed with bees, and they boiled out full of fight at being disturbed. On taking out the center frame I found a large patch of brood on each side, which was surprising, considering that it was only a nucleus, and had been subjected to severely cold weather for six weeks. This

nucleus made a strong colony the following summer. And here I may say that these bees were Banats, the only ones I ever owned. They were certainly tough and hardy, but I had to get rid of them for their drones were so vigorous that it was almost impossible to get Italian queens purely mated, even with the air filled with drones from twenty-five Italian colonies in the yard.

Several Italian colonies that I examined had a small amount of brood, but not as much as the nucleus before mentioned. Of course it is better to avoid disturbing bees in the winter; but in cases of emergency a cage like the one I have described will meet all requirements, although the height might be somewhat reduced and still give plenty of space for flight.

Ipswich, Mass.

BREEDING FROM IMMUNE STOCK TO GET RID OF PARALYSIS

BY CH. NOEL EDDOWES

In an article, p. 723, Oct. 15, Mr. N. L. Stapleton advocates requeening as a cure for paralysis. I am in accord with Mr. Stapleton as far as that, but I do not agree with him that the queen is not responsible for the trouble. In my experience I have found that the queen has most to do with the trouble, in that her bees are more susceptible to the attacks of paralysis than the bees of a queen that comes from a stock that has not suffered from the disease. I am (as Darwin was) a strong believer in the survival of the fittest; and if a breeder wishes to get the most fit he must select from queens whose bees do not show signs of disease.

In 1905 I bought 40 colonies of bees. When the season came when bees are attacked by paralysis, the apiary was strewn with dead and dying bees so that it was impossible to take a step without treading on bees. I noticed, when examining the hives, that there were two colonies that did not show signs of paralysis. These two queens I picked to breed from. The next year the improvement was marked. I continued to pick my queens in this way until now I rarely have more than one per cent of my colonies attacked by paralysis. But this was not enough, as the supposition had to be proved.

In 1909 I had a queen whose bees contracted paralysis. I reared five queens from her and scattered them through the apiary as far apart as possible. The rest of the apiary was requeened from a queen that I knew was practically proof against paraly-

sis. It was curious to see how the disease picked out those queens which had inherited the constitutional weakness which made them susceptible to its attack. I made no attempt to cure them. One was killed right out; three others were badly attacked, but recovered; one was not attacked. None of the colonies headed by the daughters of the immune queen were attacked.

In 1913 I reared ten queens from a queen I wished to test. I knew nothing of her antecedents, but she had proved herself a good queen and had not shown signs of paralysis. There were 56 colonies in this out-apiary. The rest were requeened from one of my breeders. Paralysis attacked this queen's colony and seven of her daughters, but not one of the colonies requeened from my breeder. I keep a very careful record of my breeders so that I can look up my record-book and know what any queen's antecedents did. The quickest way I know to cure paralysis is to unite a nucleus with a young queen, known to be of immune stock, to the sick hive. The bees of the nucleus will, as a rule, kill and throw out all diseased bees, and the colony will be cured in about a fortnight. I once had a queenless and broodless colony attacked by paralysis. I gave the bees a queen and brood at the same time; and as soon as the brood hatched, and the young bees had taken the place of the old bees, paralysis disappeared.

From my experience I think that paralysis is transmitted from bee to bee so that, when a colony swarms that has paralysis, only the healthy bees go with the swarm, so they start fresh and keep well. I have not found that it makes any difference whether the colony remains without brood for any length of time or not; for when I treat a case I kill the old queen and introduce the new queen at once. If the colony is very weak I give combs of hatching brood.

Mr. Stapleton will find that, if he continues his observations for a sufficient length of time, queens whose colonies have been once attacked are very liable to a second attack. After a beeyard is entirely cured for three months, it is expensive to have to cure it again if the beekeeper's time is worth any thing. Prevention is better and cheaper than cure. Choose immune bees by selecting and breeding from queens whose bees are not attacked; and by continuing this process over a number of years the bees, for all practical purposes, will be immune to the disease. Never breed from a queen if her bees have been attacked by paralysis, no matter how good she may be in other respects.

Government Farm School, Jamaica, Oct. 31.

CONVERSATIONS WITH DOOLITTLE

Continued from page 842.

side, which will be six inches beyond each center of each.

Let us now see how it works. The first glint of morning sunshine reaches the hive just the same as it does the hive with no covering, inviting the bees to the earliest activity, while the workers keep right on at night till the last rays are hid behind the western horizon, thus giving the early and late flight which both the editor and Dr. Miller agree upon. This gives a start and a warmth at all times, looking toward the prosperity of the colony, as no other can. At about 8:30 A. M. the hive goes into the shade, through the projection of the shade-board, and stays thus till about 3:30 P. M., when the sun again warms the hive, helping to carry out early brood-rearing, and not interfering with the labors of the colony in hot weather.

Binding Gleanings

Having had occasion lately to bind several volumes of GLEANINGS and other bee-papers, I thought it might be found useful to others if I told how it was done. The plan may not be perfect, but it is certainly a cheap and simple way of preserving journals for future reference.

After arranging the numbers for the year in consecutive order, commencing with January and ending with the index, the covers and advertisement pages were removed. Next the edges were placed evenly together, and the whole lot then securely clamped between two boards, of which the top one was about $\frac{1}{4}$ inch from the back edges. Three thin oval nails, two inches long, were driven through the papers, level with the edge of the top board, to make the necessary holes. The bottom board is then shifted back a little, and the first nail withdrawn with a pair of pliers.

A length of waxed twine was next threaded through the hole, cut round outside, pushed through again, and securely fastened. After drawing the nails the two other holes were treated in a like manner, thus holding the papers tightly together. The back now receives a thick coating of glue, and likewise a strip of calico wide enough to fold around each side for about half an inch when in position. A heavy weight placed on keeps the journals flat until the glue has dried.

For covers, a couple of stout cards the correct size, and a piece of glazed linen, are all that is necessary. A space wide enough to admit the back of the papers must be left between the cards, to which the green linen is now glued. To fix the cover on, it is merely glued to the back and allowed to set.

Although neat in appearance, card covers are not absolutely necessary; but when dispensed with, a front and back page of GLEANINGS with one of the fine photographs may be pasted on instead.

A. H. BOWEN.

When I first read GLEANINGS four years ago I was surprised to run across Our Homes in an apicultural paper. Since then I have seen the *Farm Journal* and *Successful Farming*, both of which not only guarantee advertisements, but also acknowledge the fact that there is One who is to be thanked for all the blessings we enjoy.

St. Paul, Minn.

H. G. BRANT.

Heads of Grain from Different Fields

Extracting from Brood combs in September

October 25 I put my bees in their winter berths consisting of the telescope for each individual hive in which they came through last winter in good shape. I much prefer wintering my bees on their summer stands, as there is always some loss in both the fall and spring, even if one moves his bees only a few feet. So by using the telescope, and leaving them undisturbed, I find it works much better than lurching them. As to cellar wintering I much prefer the summer stands. There is no lifting of heavy hives, no anxiety as to temperature and ventilation. I simply set the telescope over them, and pack dry leaves around them. Then I forget them until about April 1, when the telescope should be removed and the hives examined and equalized as far as it is possible to do so.

I am right now wondering if there will not be a lot of dead bees next spring that now seem to be in good condition.

I have been guilty of a serious error, and I believe many in this State are guilty of the same error—viz., I failed to extract the honey from the brood-chamber in September, spread the brood, place the empty combs in the center, and feed some good sugar. On examining my bees in late September, preparatory to getting them ready for winter, I discovered many hives with no brood, and others with but little. I attributed this condition to the fact that, when the honey-flow from the sweet clover ceased, the queens stopped laying; and when the aster flow commenced, there was but little room for the queen to deposit her eggs, as she had been so crowded with sweet-clover honey. I feel quite sure that I am going to lose a few bees on this account, especially if we have a hard and prolonged winter. So far as I have been able to learn, many colonies of bees are in this condition, and I greatly fear that next spring will find many of us with few bees and plenty of honey.

Indianapolis, Ind. J. F. KIGHT.

[It is of the greatest importance to make sure of the proper proportion of young vigorous bees in the fall. If the conditions are such that the brood-combs are filled solid with honey in the late summer or early fall, so that the queen has no room to lay, possibly it might be best to extract some of the honey to make room for brood reared because of the stimulative feeding later on. However, we think it would be best to start brood-rearing earlier by stimulative feeding so that, in case there is a good fall flow, the lower part of the central combs will still be occupied by brood, which, hatching out later on, will leave a "winter nest."

This whole question is a disputed one—that is, the question of wintering on solid combs of honey or on combs having empty space in the lower part for a winter nest. We suggest that all those who have the opportunity to do so should test the two plans this coming winter and report in the spring, said reports for use in our Sept. 1st issue in 1914.

We doubt whether many beekeepers would sanction the plan of extracting from the brood-nest in September.—Ed.]

Comb Honey Cut to Fit into Sections has a "Stuck in" Appearance

I have read with interest the article by Dr. Humpert, Oct. 1, p. 674, and your remarks on it. I was surprised that you should consider the plan of cutting frame honey into chunks for the bees to fasten in section bases as something of originality and value. Before now you will probably have heard from many beekeepers who have experimented in this line with more or less success—generally less.

Last spring I had more calls for section honey than I could begin to supply. I had a good many

more shallow frames of orange honey than I needed, so I tried to make the bees fasten my chunk honey into sections. I found the best way to get the comb in the sections was to cut it a very little too large, take a folded section, open the joint, slip it over the chunk of honey, and squeeze the dovetail together again.

The bees certainly fastened in the combs; but the results were not satisfactory. In almost every case the cells next to the wood were cut down to (or nearly to) the midrib, and the adjoining ones rounded off to match, and, of course, emptied. Nor could I get these empty cells drawn out and filled again, though the colony I used was an ideal one for such work—a prime swarm requeened with a ten-day-old queen. The brood-nest was packed with honey and young brood, the bees were finishing their first super, a good flow from orange bloom was on, and a big feeder was under them at night. Five days after giving these stuck-in sections the colony swarmed, and the sections still had the stuck-in look, so I cut out the honey again and put it up as "bulk comb."

Some beemen may make a success of Dr. Humpert's method, but my little experience leads me to believe that section honey produced in this way will always have what might be termed a stuck-in appearance, and necessarily so, for the bees must clean out every cell next to the wood in order to do the sticking in, and I am not sure whether they can even stick it without cutting down the walls of the cells somewhat.

As to eliminating swarming, I think I will use the method for making extra-rapid increase next spring.

By the way, I can give a sure method for eliminating tree-climbing for the purpose of capturing a swarm. It is very simple. Let the swarm come out and circle higher and higher until the bees pitch on the uppermost and outermost limb of the only unclimbable tree in the yard; then stand off where you can get a good sight of the cluster, and with a 22 rifle shoot off the queen's wings. You will kill a few of the bees near her, but that will insure her losing her hold and coming to the ground ready to cage. Don't say this is impracticable, for I did it myself last week. True, I was not aiming at the queen, but trying to cut off the limb so the bees would cluster somewhere else, and made a "miss shoot," and cut through the edge of the cluster. I killed about 20 bees, and the queen came down with them with half of both wings shot clear off. She is laying now, and apparently no worse for getting into a shooting-scrape. I would not recommend the plan to a novice; but one with experience in beelore should succeed.

Apopka, Fla., Oct. 27.

HARRY HEWITT.

A. I. Root's Directions for Wintering Bees Given Thirty Years ago

Now that cold winter is about to close in on you in the colder regions, let me repeat the formula that our old friend A. I. Root gave to us (how to winter bees) over 30 years ago. If you, my brother and sister beekeepers, will strictly adhere to the formula I would not be afraid to insure every colony you have to winter without a single loss, providing you have healthy bees and good pure winter stores for them to eat.

Have a double-walled hive, the intervening space filled with oat chaff; a couple of division-boards made of 3/8-inch lumber, doubled-walled, filled with oat chaff, cushioned around the ends and bottom so as to fit the hive tight. Now comes the particular part. Weigh out four combs that will average 15 lbs. of honey to the comb; the best quality of honey possible. Place them in the center of your double-walled hive properly spaced; crowd down your chaff division-boards on each outside. I will add, before you

put in the combs of honey, cut out a circular piece of honey in the middle of each comb about two inches from the top-bar for a winter passage. They will not fill them up during the winter. Now that your combs and division-boards are in, properly spaced off, fill on the outside of the division-boards and inner walls of the hive with oat chaff. Now comes the filling up. Just crowd these four combs with bees until they squeeze out on the alighting-board. Simply have them to fill the entire space. Then lay a small stick, perhaps two, across the frames, about three or four inches apart. Put on your burlap. I will add on my own responsibility three or four newspapers, then your upper story or half-story chaff cushion; then the cover, and you now have a hive of bees that will simply be a sure thing. Father Root gave directions how to make the chaff cushion (burlap): "Cut it so as to have square corners; make it so it will be a little larger than the inside of the hive, so it will be about six inches deep; then fill it with nice oat chaff; then crowd it down tight all around the inside of the upper story or half-story."

I have been handling bees for about thirty years, and in a cold country (until I came here), and I always followed A. I. Root's formula for wintering bees, and yet have the first swarm to lose in wintering.

Well, in this country any old way will do; but they require a whole lot of honey, as they just go to it all winter.

Phoenix, Ariz., Nov. 10.

L. M. BROWN.

Is it Advisable to Take Out Full Combs of Stores and Put in Frames of Foundation in the Fall?

My ten-frame brood-chambers are full of honey. Would it be good policy for me to remove a few frames of honey and replace them with frames of wired foundation? If so, in what part of the hive should I put them—middle, sides, or all on one side?

In the fall, how late should feeding to encourage brood-rearing be continued?

When replacing poor combs by frames of wired foundation in April, should they be put in the center or side of the brood-chamber?

Des Moines, Iowa, Oct. 13.

L. S. EDISON.

[No, sir, 'e. If you have ten-frame brood-chambers full of honey, do not disturb them. We can not see what you would gain by removing a few frames of honey and putting in their place frames of foundation. If they are put in the center of the brood-nest they will be almost worse than nothing unless you feed enough syrup to cause the bees to draw them out, fill, and cap them over. You will then be right back where you started, and in the mean time you will have exhausted the vitality of the bees not a little by the procedure.]

When bees are needing stores, one can feed clear up to and sometimes past the time when frosty nights and freezing weather come on. But it is usually advisable to feed earlier. We have fed after having freezing spells, and have had excellent results in wintering. In our locality we can feed as late as the first of November, and sometimes it is necessary to do it, as an earlier feed will start brood-rearing, causing some of the syrup to be used up.—ED.]

Supplying an Artificial Substitute that will Fully Take the Place of Natural Pollen for Brood-rearing

I am in need of some information regarding supplying bees with pollen, and therefore am imposing on your time as the most direct way of getting it.

In your various experiments have you tried a cooked nitrogenous feed as artificial pollen? If so, would you advise an equal mixture of wheat shorts

or middlings, and cotton-seed meal mixed with honey to make a jellylike mass? Owing to our two dry winters and the freeze last winter, there is a dearth of late pollen-producing plants this fall, and hardly enough pollen in the combs to supply the brood-rearing that usually goes on during the winter. About the same condition prevailed last winter, and the bees built up on orange bloom. For that reason there was no surplus.

Moreno, Cal.

B. W. BROWN.

[You put up a hard question for us to answer. While bees can be fed meal out in open pans at certain seasons of the year, this kind of pollen does not seem to give the results that the natural pollen does from the flowers themselves. We never tried cooking the nitrogenous feed. We have no idea how it would work. We may be up against this proposition in Florida when we move our bees there this winter. Mr. A. B. Marchant, of Apalachicola, thinks he has solved the problem of how to supply the bees with an artificial substitute for pollen in the hives so that the bees will rear brood when natural pollen is not available. Perhaps he will tell us about it. Should you discover any solution of the problem we should be glad to have you let us know through the columns of GLEANINGS.—ED.]

A Further Precaution to Observe when Shaking for Foul Brood

When reading R. F. Holtermann's article on "Shaking Combs of a Diseased Colony," Oct. 15, p. 726, a further method of "minimizing risk" occurred to me. At the time of removing combs not containing brood in preparation for shaking, cage the queen in a cage which can be easily removed from the hive without disturbing the bees. Next day move the hive gently—so gently that the bees are hardly aware that they are being moved, and in its place put the hive prepared with frames and starters. This should be done when the bees are flying freely, and in a short time sufficient bees will have collected to take care of the queen which should now be given them. By evening most of the gatherers will have returned to the old stand, and the young bees left can be rapidly shaken from the combs without the use of any smoke. The second shake can be carried out in the usual way. Of course, if preferred, the queen could be caught early in the morning. By midday the bees, having got over the excitement caused by the manipulation, the hives could be changed, and the young bees shaken in the evening when other colonies had ceased flying for the day. By this method the greater number of old bees would transfer themselves without taking any contaminated honey with them.

B. BLACKBURN.

Hoo, Minster, Ramsgate, England, Nov. 5.

Please advise what success building up colonies on sweetened water, 1 to 9, would bring. It does not seem to do well here.

W. L. WHITNEY.

Cranbrook, B. C., Can., Sept. 29.

[Sweetened water, or a syrup of only one part sugar to nine parts of water, will do very well for outdoor feeders during warm weather. Such a weak syrup as this, however, must be taken up in a few hours; otherwise it is quite liable to sour. A 1-to-9 syrup can not be fed inside the hive unless the bees can take it up inside of 24 hours or less. Something, however, will depend upon the humidity of the atmosphere as well as the temperature. In your climate we should think it very doubtful if you will be able to use the 1-to-9 syrup. You probably could not use very satisfactorily in the hive any thing less than three parts water to one of sugar.—ED.]

Our Homes

A. I. Root

What hath God wrought?—NUM. 23:23.

OUR OHIO HOME; THE BUNGALOW.

A year ago or more I told you that Mrs. Root was finding it too big a task to take care of our large brick house that was just right to accommodate us two when we were younger, with our family of five children; and I told you, too, that she was begging for a little home—one that would not require so much care and responsibility. Before we started for Florida last fall it was inclosed with the roof on; and the children—Mr. Calvert particularly—looked after the finishing up during the winter. When we came back last April the house was all finished complete, as you see it below. The young folks wrote us that our home was ready for occupancy; but it was one of our happy surprises to find it complete, warmed up with natural gas, hot and cold water (and soft cistern water at that) wherever it was wanted; and last, but not least, a pretty well-stocked pantry. Carrie Bell, our youngest daughter, came in next day and asked how we liked our bungalow and its surroundings. I think the reply that I gave offhand sums it up pretty well. I said, "Why, dear Carrie, we find just showers of blessings everywhere."*

Now, after looking at the picture you might care to know something about the inside. There are four moderate-sized rooms on the first floor—a sitting-room, a dining-room, a kitchen, and a bedroom. You might think the bedroom should have been upstairs; but Mrs. Root said she had climbed stairs all her life, and she would like a home so that, after she had passed three-score years and ten, there would not be very much running up and downstairs to do. Besides the four rooms mentioned, there is a pantry and a storeroom in a little wing on

* Will the friends excuse me if I pause right here and speak of something else that may seem a little irrelevant to our subscribers? When Mrs. Root and I formed a partnership we had planned not to have a very large family, if any at all; but "man proposes and God disposes;" and I feel like adding, "Blessed be the name of the Lord." Suppose God had not overruled our poor weak judgment and overruled our plans. I shall have to confess that, as the little prattlers came trooping along, we sometimes thought God was imposing a pretty heavy burden; but where would this beautiful home be, with its loving children and grandchildren, had we been permitted to have our own way?

Now let me go a little further. There are several of you, both men and women, whose eyes rest on these pages, who are not married, although of marriageable age. Perhaps you are preparing to live single. My friends, where would I have been at this moment had I listened to selfish plans and selfish impulses? Does not God know best? and has he not with wonderful wisdom fashioned humanity with infinite love and care after all?



Our bungalow cottage that Mrs. Root and I found finished when we reached our Medina home last April.

the back side. Please notice the first floor is but little above the level of the lawn in front, so there is not much climbing up and down to get in. Well, on the back side the basement is also on a level with the garden, for the house is on a little side hill. The basement floor is really above the level of the ground outside, so that if the water should ever get into the cellar it will run out of the outside door. But that is not likely. The cistern is under the pantry, and is partly under ground and partly in the basement. When we have plenty of rain it can be filled up nearly to the main floor. The cistern is planned so that, by unscrewing a four-inch iron pipe, every drop will run out by gravity; and when it overflows the overflow all comes from the bottom, taking up sediment or whatever may have collected from the rains. Without our knowing anything about it, the children had planned an apparatus to take the water out of the cistern, and drive it, either hot or cold, into a bath-room or the kitchen sink. This is done by the force of the city water, the latter being comparatively hard. If I am correct, the apparatus sends up three gallons of soft water by wasting two gallons of the city water.

Heretofore we two have never used gas for warming or for cooking; and for quite a time Mrs. Root declared she would rather have her old-fashioned Stewart cook-stove. Her main complaint about the gas was that it would never go out of itself like wood for fuel. In cooking with the old stove she had learned to put in just about enough fuel to do the work; and if she forgot about it, it would go out of its own accord. In vain I pleaded that with gas there was no dusty fuel to litter up the house, nor ashes flying around to be brushed up daily.

Before leaving the house, I wish to say a word more about the stairs. Mrs. Root declares she has worn herself out by climbing awkward and poorly made stairways; therefore I told her to have these stairs down to the basement made just after her own notion; and I think I can describe it without any drawing; and I want to add that, if I had to climb basement stairs many times a day, I entirely agree with her. These

stairs are made of just two long two-inch plank. Plain flat steps are let into these plank so as to come just $8\frac{1}{2}$ inches from the top of one to the top of the next; and the plank for the steps are just ten inches wide; but there are no risers to close up the space between the steps—nothing to bump your toes against when you are in a hurry; and this makes it very much easier to sweep them off or dust them off. These stairways are certainly a very important feature in any home, and I would put the matter of looks entirely secondary. Have the stairs easy to use and easy to dust off and keep clean.

Our main cold cellar where we keep our vegetables and fruit is under the north side, and the house faces north. By opening the windows of this cellar during cool nights or cool days, and shutting it warm nights and warm days, we have been able to get along very well without the bother of a refrigerator; and as the floor of this cold cellar is right on a level with the garden, as I have told you, it is an easy matter to move stuff in and out without any climbing up and down. The front porch needs no description. It is all made of cement, including pillars that support the roof. The roof is slate, as you notice, so we have the very best of drinking-water. The picture of the auto-house just below gives you also a glimpse of the east porch. This porch is also of cement, floor and all. If you have never had a porch with a cement floor you can scarcely imagine what a convenience it is to have a floor that can be swept and scrubbed off with nothing that will soak up or hold the water.

The sidewalks which you see in the pictures are made of cement. They cost, all



Our auto-house for that little electric auto I have been talking to you about.

told, ten cents a square foot, made by a firm that has the machinery for doing the best kind of work.

Now about that automobile-house and the electric automobile. Carrie Bell with her two children occupied the seat while Huber took the picture. The building for the electric auto is, as you see, close by the front door; and I greatly enjoy using the little machine to run errands for any of the six families. To obviate the trouble of turning around, Huber invented and installed a very pretty little turn-table. It takes less than a minute to jump out of the machine, grasp hold of the wheel guards, and run it around so it will be ready to start off again. The apparatus for charging the electric battery was installed by one of the grandchildren, Wynne Boyden (13), the elder son of the daughter we called Blue Eyes toward forty years ago.

If you look between the buildings over down the bank, you will get a faint glimpse of the row of evergreens that cut off the west wind from our garden. You can also get a glimpse of the big sunflower that stands close by the dasheen. It got some of the liquid manure that overflowed the dasheens, and I just cut one single head of seed that weighed 9 lbs.

Now I want to close my long story with something about that electric automobile. It was purchased in Cleveland, second-hand, and cost, as it stands, only \$275. It is a Baker electric Stanhope, and cost, when first made, \$1800. They are now offered for sale in the large cities at these low prices because they are somewhat out of fashion. But what does that matter to Mrs. Root and me? The batteries needed renewing when I bought it, and this will cost about \$75.00; but it ran all summer just as we found it, and will run twelve or fifteen miles very well with one charge. With the replenished batteries it is supposed to go about forty miles with good level roads. One trouble with the electric is that, if you try to run over bad or muddy roads, your current will be rapidly exhausted, and you might find it hard work to get home. The electric is so simple that any woman—in fact, almost any child—might run it. When you want to go you just push a single lever. If you want to go faster, crowd the lever further. With good roads it will make about fifteen miles an hour—a little faster than any horse will go; or you can run it on a slow walk if you wish. I have had a great deal to say about God's gifts; and I want to tell you that, with all the blessings that have come to me in the comparatively long life I have been blessed with, there are few things that I thank God more for than

this electric vehicle. It is always ready. It saves my strength. It is always ready to hustle things, without complaining, when important matters crowd. It never tires. It very seldom needs any kind of repair—at least while I can handle it. Let me go back a little.

When I was about twelve years old, and electricity was my hobby, I went to a blacksmith and bought the largest worn file he had on the premises. I had him heat it up and form it in the shape of a letter U. Then I ground off the file-marks and had it tempered, and then I had a big U magnet. A traveling lecturer magnetized it for me. Then I got a little bit of pure soft iron that would almost reach across the poles of the magnet. This was mounted on a spindle or shaft with a coil of copper wire around it, making an electro magnet. With a home-made galvanic battery, after some hard work for weeks or months experimenting, I had an electric motor much after the fashion of the motors that now drive our electric cars and many of our factories. I wanted this motor of mine both to push and to pull; and I got it, and was surprised at the power it exerted. I have before mentioned going around to the country schoolhouses and giving them talks with my home-made apparatus. I predicted, in a boyish way, what was coming. I said it would be in "three or four years." The only mistake I made was that it took the scientific world and our best mechanics thirty or forty years to bring it about. With this explanation you can readily imagine how fervently I thank God for having been permitted in my old age to run errands and help the young folks with this beautiful (and I should say elegant) machine, even if it is a little old-fashioned piece of mechanism.

Somebody has suggested that my beloved auto is not exactly God's gift, just like the honeybee and the dasheen, but that it is a gift from our men of science and men of skill. But, I ask, who gave to our scientific men their wonderful ability and skill to grasp and fashion the lightning of the heavens, and to make it an obedient servant to do our bidding?

"He that hath ears to hear, let him hear."

I have for a long time been watching for some invention that would do for the hearing what spectacles do for the eyes; and although several manufacturers of apparatus for the deaf have claimed they had it, I fear it has not yet come to hand; but I think, however, it is in sight. I hardly need mention that unfortunate people, who are hard

of hearing, have been humbugged and swindled by quack advertisements. I have tested pretty much every thing I have seen advertised; but the most benefit I ever received was from some sort of ear-trumpet. The things that are pushed *into* the ear may, some of them, be of slight benefit under some circumstances; and some are sold by philanthropic parties who will let you take one on trial, for which they charge you \$1.00, and they *keep* the dollar for just letting you "try" a thing that should not cost more than five or ten cents.

For a year or two I have been noticing advertisements of a sort of telephone for the deaf; but I did not think proper to bother with it until I saw a half-column advertisement in the *Sunday School Times*. This was from the Mears Ear Phone Co., 45 West 34th St., New York. After a little correspondence they have sent me two instruments on trial, both operated by dry batteries. The massage aurage is for stimulating the nerve of the ear so the natural hearing may be recovered. The directions are, that when one gets a machine he is to walk up to the clock and see how many inches away the ear must be just to catch the sound of the ticking. Then after having used it for some time (twice a day), keep testing the distance. If you can hear the ticking further away, you are making progress. So far, I can not perceive any benefit from the aurage. The other instrument, the ear phone, certainly makes every thing louder. With this instrument I can hear the ticking of the clock plainly from the further end of a large room. Now, this is certainly encouraging. But the sound of the human voice, although much louder, is unnatural and indistinct, so that so far it does not seem to be of any benefit to *me*. Not only is the ticking of the clock magnified, but every other sound. When Mrs. Root is working with her dishes the clash of the pans and kettles fairly makes me jump. Any thing like the rattle of a tin pan seems to be particularly magnified; and these various sounds make such a din that I can not hear talking as well as I can without an instrument. I may get over this in time, and I am going to make a faithful test.

Now here comes in one of my "wonderful discoveries;" but, like so many of my discoveries, although it is new to me it may be an old thing after all. While experimenting with the ticking of the clock I happened to put my hand up to my ear, as deaf people often do, and I found that, by putting my thumb under my ear and my fore finger back of and over it, and crowding the ear forward (as a horse does when he wants to listen), I could hear the clock

tick plainly clear out in the center of the room. With *both* hands in that position I could hear it tick in any part of the room as well as with the instrument. Now, it would not only be inconvenient but a little ridiculous to think of putting up both hands in that position when I can not catch on to the talk; and I confess, also, that I shrink against publishing my infirmity by lugging an ear-trumpet around wherever I go. I think at the present time I shall get along as I have been doing for a dozen years past—that is, when outside of our home or in the office. In the office I shall use the palm of my hand in the way I have described when I do not hear readily; and my two hands, right and left, I shall take along with me, having them at all times right at "hand." I think this will be much easier and more comfortable, at least to myself, than a dry battery and a receiver, even if the latter is not much larger than a half-dollar.

I have also received circulars from the General Acoustic Co., of New York. Their apparatus costs \$60.00. The ones I have been mentioning cost \$20.00 each, or the two for \$37.50.

Later.—To-day, Nov. 3, just as we are about to start for Florida, I have, by the kind permission of the manufacturers, tested both instruments mentioned above—the \$20.00 one and the \$60.00 one—and I am sorry to say that, although the latter is a much finer instrument, I do not find either one enough help in my case to warrant me in keeping it, and therefore both have been returned. The principal trouble is the clash and clatter of sounds besides the voice that I am wanting to hear. I am assured by both of the firms that in time I would be able to distinguish and would not be troubled by these echoes or clattering, and this may be true. The greatest reason why I can not hear through the telephone is the buzzing and scraping noise. My deafness is a little peculiar. While I hear the voice I do not seem to be able to catch on unless I know pretty well what my informant is talking about. Another thing, I hear ordinary conversation very well without any mechanical help if I can be reasonably near the person who is talking.

I am sorry to make so poor a report, for I have good reason to believe that hundreds are finding these instruments of great benefit.

What a feeling of delight comes over one on returning hot and tired from a long day among the bees, to find GLEANINGS awaiting our arrival! It seems to get better and brighter every issue, while the special numbers are really a valuable addition.

A. H. BOWEN.

High-pressure Gardening

SWEET CLOVER A "NOXIOUS WEED."

Dear Sir:—This statement appeared in the *Geneseo Republic*, Aug. 1, 1913. The paper is printed in Geneseo, Ill.

Colona, Ill., Aug. 1.

C. J. GLENN.

Here is the clipping referred to:

A DANGEROUS PLANT.

The plant *mellilotus*, or sweet clover, with its pretty name and unparalleled vitality, may give mankind the trial of the ages. It probably will prove a scourge worse than war and all other scourges combined, and yet it may give back to the world the nitrogen that our soils are begging for to-day.

In some parts of the world nitrogenous rocks are scattered by the glaciers of the past, and the slow decomposition of these rocks gives a nitrogen supply; but in the great Northwest, where the rocks are covered with many feet of alluvium, the soil is even now in great need of nitrogen food that can come only from plants like sweet clover, red clover, white clover, alfalfa, cow peas, etc.

Mellilotus alba, or white-blossom sweet clover, is the one we are after in this article. There is also the yellow variety (*M. officinalis*), and the common alfalfa (*Medicago sativa*), which are more easily managed and controlled. Sweet clover was first sown broadcast on the roads to feed the bees, and for a time did little harm; but the wagon-wheels have carried it into every road in nearly every State, if not every State of the Union. I have studied it in several States, and have found it close up to the timber line on the Rocky Mountains.

The reason why it has not gone into the fields and pastures more is because the clover bacteria are not in most of our cultivated fields; but it is surely creeping into the fields and pastures, and will soon make the farmers take notice.

I will stake my reputation on the statement that, if one pint of seed with clover bacteria were sown on a forty-acre timber pasture, and a young man were given a scythe, a hoe, and a spade, and hired for life, he could not exterminate it if he lived sixty years. I have never seen a road cleared of it yet. It gains a little every year, no odds how much it is mown down, as mowing is a positive failure. It is a biennial plant, and will produce seed the second year. If mowed ever so much, the lower branches will seed the ground all over and gain a little ground as the nodules in the soil gradually spread. I can show a multitude of roads and lanes so covered that there is scarcely a wagon-track open; and the worst feature is that nothing else grows when *mellilotus* comes in.

If it gets into the fields and pastures as it now occupies the roads and hedges, the food supply of the domestic animals and the human family will be about shut off. It is fast injuring our roads, for no road-grader was ever made that would kill it out on any road. It is a menace to the traveler, for it entirely hides all gullies and ravines, and teams are often floundered in a hidden trench in crossing the road, as it grows six feet high in any poor soil.

Our domestic animals will eat a little sweet clover if starved to it, but they generally pass it by and hunt for other grasses. They will soon hunt in vain. I can show any one thousands of places where it is gradually taking possession, and it will stay until some genius can invent or devise an exterminator to cope with it successfully. Science must come to the rescue now or it will prove to be the problem of the nineteenth century.

If quick relief does not come, the whole human race will be hopelessly enslaved by this fiend of all fiends, this curse of all curses, this wolf in sheep's clothing, this demon in disguise.—L. R. WITHERELL, Knoxville, Ill.

One reason why I have given place to the above is because it so forcibly illustrates how some people, when they get a going, ride their hobbies to death, trampling under foot good common sense, reason, and every thing else. In the second paragraph our vehement friend *acknowledges* that the much-needed nitrogen can come only through the influence of sweet clover and other legumes; then he straightway deplores the kind of "mission work" that the wagon-wheels of our limestone roads are doing. Then again he honestly owns up the need of the clover bacteria which are "slowly but surely" creeping into the fields. Very likely it will be a slow job to eliminate sweet clover with a scythe, hoe, and spade; but, my dear friend Wetherell, that is not the way we exterminate the weeds from fields in our part of the country. When sweet clover does get into the fields, it is the easiest plant in the world to exterminate by simply plowing it under; and it is the very best legume to enrich poor soils that has ever been discovered. In regard to its being an enemy to good roads, it makes one smile to think of that letter in the book we have just printed on sweet clover, that tells about making the very finest kind of roads with sweet clover and spreading it in sandy places. In closing, our friend admits that domestic animals will eat it if starved to it; but he does not add that, when once they get to liking it, they prefer it to any other clover. Either he has never discovered that fact or this ugly mood prevents him from owning it up. Now, my good friend Wetherell, how does it come that you omit all mention of what our experiment stations are just now deciding about sweet clover? And, finally, is it possible that you do not know any thing about the sweet-clover bulletin that the Department of Agriculture of the United States has just been sending out? Your closing sentence that ends with "this demon in disguise" is a big joke, in view of the fact that the agriculturists of the world are just now deciding it is an angel of mercy to the hard-working farmer instead of being what it has been called, a "noxious weed."

Later.—Since the above was put in type, I noticed the article in that excellent authority, the *Country Gentleman*, which was quoted p. 816, Nov. 15.

I might mention here that all or nearly all the agricultural papers are now falling in line, and giving sweet clover the credit that justly belongs to it.

SWEET CLOVER ADAPTED TO POOR LAND.

Please note the enclosed clipping. It looks as if the despised weed was at last coming to its own. I expect to attend this opening; and if I can find any one who has fed sweet clover, or used it for pasture, I will give you the details.

You wrote me some time ago regarding the time the farmers cut their alfalfa. The *thinking* man cuts his after it blooms, as the cured hay has more substance, and is not what is termed washy; in fact, it is impossible to feed cured alfalfa that was cut green (or before blooming) to horses, as it has a very bad effect on their kidneys, and weakens them. It does not seem to affect cattle or hogs. I think that in five years from now half the alfalfa will be allowed to bloom before it is cut.

I look for heavy winter losses on bees this year. Dry weather killed all plant life, and the fall flowers were just nicely started when we had a killing frost. However, it is all for the best, as the majority of those who lose out never give their bees any attention, and that is where half the foul brood comes from.

We have what might be termed an inactive foul-brood law. The county commissioners of the various counties of the State are supposed to appoint an inspector who is to receive two dollars a day and no expenses, and the inspector is to collect his fee from the owner of the bees. How a man can cover a county on a team hire of two dollars a day is a mystery. We expect to take this matter up with the next legislature, and try to get sufficient money to make the law a real law.

Lincoln, Neb., Oct. 10.

H. W. JEFFRIES.

[The following is a part of the extract from the *Nebraska State Journal* referred to:]

The government proclamation, issued when it was originally decided to open the North Platte forest reserve to homesteading did not promise much for the settler in this region. Some Lincoln men who intend to file for claims say, however, that they have no choice between the Fort Niobrara land and the North Platte reserve land. Two-thirds of the North Platte reserve land is not the best for farming; but the adaptation of sweet clover for cattle feed recently demonstrated, has led many to say that they would like to try the North Platte land. This land, they say, will grow an abundance of sweet clover where even alfalfa would not grow.

"WHAT TO DO WITH ALFALFA WHEN YOU GET IT."

The above is the title of a most valuable and interesting article in the *Ohio Farmer* for August 30. In fact, that article alone ought to be worth to almost every farmer the subscription price to the *Ohio Farmer* several times over—that is, 50 cents a year. See the following extract:

I have been a good deal interested and somewhat amused to see the efforts now being made to cause everybody to grow alfalfa upon every farm. Of course I know that everybody can grow it, and I am sure also that everybody would be profited if he would grow it; but also I know full well that many a man will succeed in getting a stand of alfalfa and will fail with it after he has gotten it. There is not a doubt in the world that alfalfa will pay. Take this year of drouth. Suppose a man gets only two tons to the acre—which we exceeded at our first cutting. If the hay is well made, that is equal in feeding value to corn, pound for pound.

What do you think of that? Alfalfa *hay* worth as much as corn, *pound for pound!**

* By the way, if a pound of alfalfa hay is worth as much as a pound of corn, how about alfalfa for chicken feed? You see there would be no harvesting

Now, one important part of the alfalfa business—at least to beekeepers—is the bloom. See the following:

It must always be allowed to attain a sufficient maturity so that the little shoots are starting at the base of the stems. If it is cut before this time it is greatly damaged, and the later crops of hay will fall far short of perfection. Hundreds of fields of alfalfa in Ohio have been plowed up in disgust because men simply cut them too early, and in this way stunted and diseased their plants.

Of course, friend Wing does not say the alfalfa should be permitted to come in bloom before cutting it for hay, but it tends in that direction. I believe it is generally understood that alfalfa is not worth very much to beekeepers unless it is grown for the seed. One of the greatest crops of honey I ever saw in one locality was from the alfalfa fields of York State; but as those fields were a perfect mass of bloom over hill and vale, I presume they were growing it for the seed. I think it will pay not only to read but to study the whole article. I hardly need tell you that there is no better authority on growing alfalfa than W. O. Wing.

I am glad you are hammering away at the bad things in this world. Note the enclosed clipping. We are going to vote on that bill. Dr. Owens-Adair is an elderly woman. I have known her for 25 years, and she always stood for clean things.

Necanicum, Ore.

HERMAN AHLERS.

AUTHOR OF NEW LAW DEFENDS IT; STERILIZATION A BENIGN AND HARMLESS TREATMENT OF UNDESIRABLES.

Sterilization is little understood, and many will vote against the bill, believing it to be a harsh and inhuman measure, when in reality there could be no more humane remedy for the protection of the unborn children and for the purification and perpetuation of our nation. Senator Day said when he voted for my bill: "This bill can hurt no one, therefore I vote yes."

It is shown by statistics that insanity is increasing 3 per cent faster than the population of our country. It was claimed by a physician who addressed a meeting called by the prominent men of science to discuss the social-evil question that 50 per cent of all the boys and men of the United States were afflicted with venereal diseases. Is not that enough to make the people stop and reflect? Where will we stand 100 years from now if these terrible conditions are not changed?

In 1907, when I barely succeeded in getting my

nor hay-making. The chickens will attend to that part of it. Of course the green leaves are not worth as much in weight as dried hay; but in Florida, California, and other places where corn is away up, have we fully demonstrated the value of alfalfa for chickens? If it has to be sowed every year on account of its not standing the wet hot summers in Florida, will it not pay even then? And I notice by the Florida papers that they are succeeding in many places in getting alfalfa to make a stand through the summer as well as through the winter. Just one thing more along this line. In the West, turkeys are grown and fattened by the carload on alfalfa and nothing else. Can anybody tell us more about feeding chickens alfalfa? and can we get at least a fair amount of eggs without any grain whatever? What is to hinder having an alfalfa egg-farm?

bill introduced in the House by four brave young men, it was greeted with coarse laughter and coarser jests. What wonderful changes have come during those few short years! Sterilization has aroused the thinking people to thought and action. They are reaching out in all directions to find methods to check the evils that are threatening our nation. Sterilization stands at the head. It is radical, for it cuts off the contaminating source and the propagating source of the undesirable. It is benign, and it is harmless. The people may veto it, as did Governor Chamberlain in 1909, but they can not kill it, for it will come forth with renewed strength as it did before. In time it will be acknowledged to be the saving factor of this great problem.

DR. OWEN ADAIR.

MOSQUITOES—A SUGGESTION IN REGARD TO FENCING THEM OUT OF OUR HOMES.

Mr. Root:—In reading over your four objectionable features as regards Florida in the winter, I notice the mosquito seems to bother a good deal; and knowing a way that mosquitoes get into your houses that most people overlook I want to tell you. In the day time they retreat down the chimney; and when you light up the house at night, instead of going back out at the top they come inside. A great many will come in this way; and to remedy it just screen the mouth of the chimney.

Memphis, Tenn., Sept. 9.

W. E. DRANE.

Friend D., I presume you have explained exactly how mosquitoes get into our Florida home when Mrs. Root is sure every thing is carefully screened from garret to cellar. We are troubled with them only occasionally in our locality. But several times we have been wondering how some pretty good-sized ones could possibly have crawled in during the night.

FLORIDA AS A PLACE FOR BEEKEEPERS, ETC.

I have been reading a copy of GLEANINGS you sent me some time ago, and have been doing considerable thinking along the line of beekeeping. It seems to me this would be an ideal country for bees. There are but few in the country. Those that are here are doing well with no attention whatever. The best honey-producer we have here in these hills is the partridge pea. Hundreds of acres of this hill land are covered with this pea, which grows to a height of three feet in many places, and produces honey from early in the spring until late in the winter—usually about nine months in the year. The bees do not get the honey from the blossom of the partridge pea. There is a small cup or nodule, near the base of each leaf, from which the honey is gathered. There are also many other wild flowers from which honey could be gathered.

These hill lands, being a red clay loam, produce much better than the flat sandy lands of Florida. Citrus fruits are at home here, and the flavor is much better than that of the fruits grown on the flat lands. The water in these hills is pure freestone. We have no malaria; mosquitoes are not troublesome at any time of the year. The past summer the mercury never went above 93 degrees, and only once that high. In my garden are lima beans which were planted the summer of 1912 still producing beans, and apparently are growing as well as ever. They had no protection whatever last winter.

I will willingly answer any questions beekeepers or others may want to ask regarding this country.

I am not a land agent nor any thing of the kind; but I am a *booster* for this country. My native land is Shenandoah Valley, or Virginia—a good old country; but now I am a "Florida Cracker."

Greer, Fla., Oct. 16.

G. R. COVERSTON.

As the writer of the above is a "booster" for his locality, perhaps we should take it with a little allowance. Although he is located not very far from our Florida home, I think he overestimates the partridge pea. I know we get some honey from it, and it may be much more plentiful in his locality; but bees in Florida, if I am correct, have quite a good many poor seasons for honey. His statements in regard to the temperature are about the same as with us, and I have already mentioned that lima beans as well as much other garden stuff frequently bear the second year, especially if we have rain, and no killing frosts for quite a long period.

HONEY CURED WHEN ALL DOCTORS FAILED.

The last of June a colored girl four years old got hold of a box of potash, and ate some of it. A doctor was called in, and he prescribed for her, but she grew worse all the time. Her parents carried her to Montgomery, 24 miles away. This was the last of July. The doctors there said nothing would do her any good but an operation. Her parents were not able to stand the cost, so they brought the girl back. But she soon got to a point where she could not eat any thing. Then they carried her back to Montgomery, where the doctors performed an operation. She stayed there three weeks without eating any thing. They told her parents they had done all they could for her, and told them to take her home if she were able to get there; but they thought death would be the result, as she had "grown up inside," and nothing could enter the bowels. I was on my way to Montgomery, and met them at Pike Road, Ala., my station. They then told me about the child. I looked at her and was very sorry for her. I had known her parents a long time; so when I returned home I asked if the child was still alive. They said she was. I sent them some of my honey, and sent word to the parents to give the child as much as she wanted. She could not eat it at first, but it tasted good to her. At the third trial they said she did swallow some of the honey, and that was the first thing she had swallowed in three weeks. They say it was a sight to see how she improved at once. After she ate a spoonful or two more she drank some milk, and now she can go from house to house, and is doing well. She has had no medicine since except honey. A doctor stated to me that if she had had honey at first the poison would not have done her any harm.

Mathews, Ala., Sept. 8.

N. S. NORDAN.

The above is interesting because it corroborates what we have heard many times, that milk and honey are nature's remedies. You remember that when the children of Israel were wandering in the wilderness they were repeatedly cheered by the promise that if they would obey the Lord they would enter "a land flowing with milk and honey;" and the above plaintive letter tells us that milk and honey really succeeded after the doctors and surgeons with all their skill had failed.

Temperance

GOD'S KINGDOM COMING.

We notice by the *Cleveland Plain Dealer* of October 24 that the great manufacturers of our land are waking up to the need of getting rid of the saloons that so often crowd close up to places where great numbers of people are employed. I have made three clippings from the article.

Cleveland is to be the center of a national movement for legislation forbidding saloons within certain distances of industrial plants, particularly foundries.

Below is what the chairman of one of the Cleveland committees declared:

The Clevelanders will appoint as members of his committee one man from each State in the United States. Central headquarters and the directing power of the movement will be here.

"Despite all liability laws and 'safety first' efforts, manufacturers continue to let saloons do business next door to their offices.

"A man slips out for a moment or two, and goes back to work.

"No one knows he's half loaded, but may be he'll get hold of a crane, or ladle of molten iron; there's an accident, and not only he but several others are injured.

"It seems to me this question of the saloon ought to be made a national issue, that the saloon ought to be driven away from the manufacturer's door."

And the clipping below tells us what the *Iron Trade Review* has to say in regard to the matter:

When saloons are located within a few feet of a foundry, it is possible for the workmen to slip out from time to time, fill up on beer, and return to work in a short time.

Of course, brains are muddled. The result is not only poor work, but frequently serious accidents.

For years I have wondered why more of our manufacturing establishments did not take greater pains to keep their men away from drink. Perhaps I might say to our readers that of late the city of Cleveland has been instituting safety committees who make it their business to see what can be done in the way of preventing accidents, both near factories and on our streets; and, as I understand it, the above measures are largely the outcome of this "safety" organization.

A KIND WORD FROM WESTERN AUSTRALIA.

I am a teetotaler myself, but used to be a moderate drinker. I was born and brought up in South Australia, in the famous wine-growing districts of Sanunda and Angaston. The majority of the people there drink wines; everybody thinks it is good for one to drink light wines. When I was twenty years of age there was a big rush to the golden West. Rich gold fields had been discovered, people flocked to these places, and eatables went up to enormous prices, so there were big opportunities for agriculturists. Land could be had from the government for almost nothing, so I was tempted to try my luck on the land in West Australia; but it wasn't quite so easy as I first imagined. I didn't have much capital; and as every thing was dear I had to be very economical if I was going to make a success on the land, and had to give up all luxuries. Then I was determined to get on. Intoxicating liquors were also

very dear, so I gave them up; and after being without them for a time I found I could work just as well, and at the same time it was a big saving.

After I had been here three years, being interested in bees I subscribed for *GLEANINGS*, and I may say I was quite delighted with your *Home* chat. It also gave me more encouragement to stay a teetotaler. I might also mention that I am not a smoker, for this has always appeared to me as being a dirty, filthy habit. I have had a lot of lads working for me at different times, and I have been able to get the majority of them interested in your *Home* talks. Although they read no other part of *GLEANINGS*, they always look forward to it when it comes, to see what you have to say.

There are great changes taking place in Australia toward banishing the saloons, and there is not nearly as much drunkenness as there used to be.

There is one important thing I have often wondered at, and that is that the progressive Yankee has not given his women votes long before this. I see that they are starting it in some of the States. Tell your friends that it has long passed the experimental stage in Australia, and that there isn't an Australian who thinks that woman shouldn't have votes. In fact, every Australian is proud of it.

I have followed your diet talks up, but differ with you in some respects. I used to suffer from indigestion very badly, but have cured myself by dieting. If it would interest you I will tell you how I did it. I might mention that apples are my main medicine.

E. J. HAESE.

Mount Barker, Western Australia, April 30.

Thanks for your kind words, my good friend; and if you have any thing more to tell us about apples as a diet, please let us have it. Just now I am having my choice of the most beautiful apples produced, and I have said several times that I would not exchange my apple supper at five o'clock every day for the biggest and most elaborate meal that any of our great cities can furnish; and, best of all, my apple supper leaves no bad taste when I go to bed or when I get up. Just now I am feeling happy over my Winesap apples that a good friend sent me. They are of a deep red, some portions being almost black on the outside; and this beautiful tint goes through the skin to the snow-white flesh within. Indeed, I have been told that the Winesap is a seedling of the "famous" Snow apple (Fameuse).

WOMAN SUFFRAGE.

There has been an attempt made by the brewers to persuade people that woman suffrage has but little effect on the wet and dry question. See the following, which I clip from the *Home and State*:

WHERE WOMEN VOTE.

California—Two years ago, 200 dry towns; today, 675.

Wyoming—Before woman suffrage, all wet; now, 90 per cent dry.

Utah—In election of 1911, 110 cities went dry, 18 cities went wet; every county but one is dry.

Gleanings in Bee Culture

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Editorial

WE wish all a merry Christmas.

OUR English correspondent, Mr. John Smallwood, page 885, writes very interestingly of the links that bind together the two English-speaking nations.

WE would call particular attention to the article, p. 892, by Miss McIntyre, the young lady who helped to pay her way through college with money she earned with her bees.

THE FOOD VALUE OF HONEY.

IN the table found on page 904 it will be seen that honey has a high food value as compared with oysters, eggs, and beef. Honey salesmen do not, as a rule, play this tune strong enough. They should make it clear that honey is not only a high-class condiment easily assimilated, much more so than other sugars, but a food that will make brain and muscle. If carbohydrates are a necessary part of our diet let us emphasize the wholesomeness and cheapness of honey to supply this need.

BARSTOW TWO-SHAKINGS TREATMENT FOR FOUL BROOD.

W. H. BARSTOW, in this issue, gives a very unique and simple method for practicing two shakings for the cure of foul brood. We never found more than one shaking necessary for American foul brood; but to be on the safe side we shall do well to practice the double shaking. The plan offered by Mr. B. eliminates all possible danger of contamination of brood-frames, and saves a large amount of work.

OUR INDEX FOR 1913.

THE reader will not fail to notice the full index that appears in this issue. It contains 1920 references, besides illustrations and list of contributors. From it one can get an idea of the vast amount of valuable matter that has been given in these columns during the past year. The up-to-date beekeeper will, of course, preserve it that he

may take up some of the discussions that have occurred during the past year, which discussions he was compelled to go over hastily during the busy time of the year. These long winter evenings will enable him to get very much more of value out of his journals if he will make an intelligent use of the index.

WHEN TO CUT ALFALFA.

THE western beekeepers will be particularly interested in the discussion in this issue on the time to cut alfalfa. There has been a fear that the tendency was to cut before the plant comes into bloom, and this would mean a reduction in the amount of alfalfa honey. But, apparently, we have not as much to fear as we supposed. As a matter of fact we are told that those who believe in early cutting are, as a general rule, behind time. Early cutting may do a little better for dairy purposes, but there is no advantage in doing so in the production of hay for horses and mules. In the language of the Utah Experiment Station, "To insure a large yield of dry ripe hay and the largest amount of albumen, lucern (alfalfa) should be cut not earlier than in medium bloom. . . It will be a more serious error to cut too early than to cut too late."

THE NEW YORK STATE BEEKEEPERS' CONVENTION AT ROCHESTER.

ONE of the most flourishing organizations of beekeepers in the United States is the New York State Association of Beekeepers' Societies. This organization, as its name indicates, is made up of a number of affiliated county societies. Its general scheme of affiliation of smaller bodies is similar to that of the National Beekeepers' Association.

New York is one of the very best honey-producing States in the Union; but bee disease for a few years back, especially European foul brood, has made serious inroads on the honey business. But, thanks to this splendid organization, and the co-operation of the Agricultural Department of the State through its four efficient foul-

brood inspectors, both European and American foul brood have been brought largely under control. The inroads of these diseases have eliminated to a great extent the farmer who kept a few skeps of black bees; but the large producers—that is, those who make beekeeping a business and the small beekeepers who are keeping up with the times—are as much in evidence as ever.

We found a large and enthusiastic convention at Rochester, Dec. 2 and 3. In point of attendance it probably surpassed any similar meeting this year in the United States. The discussions were practical, interesting, and lively. In our next issue we hope to give a brief digest of the proceedings.

THAT CARLOAD OF BEES SHIPPED TO FLORIDA; HOW THEY ARE PROGRESSING.

THE latest advices from our apiarist, Mr. J. E. Marchant, at Apalachicola, showed that the bees were doing finely. The weather has been extremely mild, and the bees have been gathering natural pollen, and are rearing brood at a rapid rate. No honey is coming in, however; but we are feeding to keep the bees on the boom. Mr. Marchant appears to be very enthusiastic about the way things are moving, for he is very anxious to have the project prove out a success. A further examination showed that three colonies were dead, and 25 weak. The rest, however, are in good condition, making in all 273 fair colonies on arrival, and 25 weak ones.

But one must not imagine that traveling down south with a carload of bees in a fruit-car is like traveling in a Pullman. It is far from that. Mr. Marchant writes that he secured but little sleep; in fact, he had to be up with the bees almost night and day. In the midst of the trip some of the staging broke down, and he had to stop and take out over a hundred hives, make repairs, and load the bees on again. The extremely warm weather during which the bees were moving made his trip a peculiarly hard one; but, as we said in our last issue, all is well that ends well.

If our bees continue to gather natural pollen, there will be no doubt as to our ability to make a fine increase, and that is what we are after. If we get a crop of honey in addition, from tupelo, we shall consider ourselves as so much ahead.

A great deal of interest has been aroused among the beekeeping fraternity, and they are watching this experiment with not a little interest. In the mean time, the bees up north are breeding finely—so much so that there will be danger of starvation un-

less the beekeeper himself keeps close tab on his stores.

DON'T LET YOUR BEES STARVE; OUR HARD- CANDY FEEDING DURING MIDWINTER.

OUR Mr. Mel Pritchard, the man who raised over 3000 queens last season, is wintering some colonies outdoors on dry combs with a little pollen with no other stores than slabs of hard candy. Brood-rearing is going on at a rapid pace with these colonies. There will be no danger of starvation, because it is very easy to determine whether the bees have sufficient stores by lifting the packing over the brood-nest. One advantage of the candy is that it is a concentrated food, and that it can be so easily renewed. But its chief advantage lies in the fact that the bees are directly under their food supply, and can not starve. In case of combs filled with stores, the bees are liable to eat away a space, leaving themselves an inch or two away from the main supply, and during a cold snap will starve. This can not take place with candy. A full set of photos and further particulars will be given later.

But, to return to the Florida bees. Mr. Marchant has taken a number of fine snap shots, and is preparing to write up his experiments for GLEANINGS.

E. R. Root expects to visit the Apalachicola section about the last of January. H. H. Root, after E. R. returns, will then go down and assist in extracting during March or April.

Later.—Another blizzard of snow has hit us again. Our men are out with team and sled to bring two of our outyards of bees in that we did not take down to Florida. Snow closes the entrances while the bees are being hauled. On arrival they will be loaded in our bee-cellar under the big warehouse.

THE GRAND OLD MAN OF BEEDOM; HIS RECORD- BREAKING YIELD OF COMB HONEY.

DR. C. C. MILLER, of Marengo, Ill., comes nearer being the "Grand Old Man of Beedom" than perhaps any other one we could name. There are other men in the ranks who are as old as he (82 years young), but none who have kept *continuously* at the production of honey for over fifty years. To cap the climax of his useful career he secured a crop of comb honey this year which for a general average per colony is a record-breaker. See his report in this issue of Straws. If there is any other man in the United States or Canada who has secured an average of 266 lbs. of *comb* honey from as

many as 73 colonies, we do not know of him. That means almost a carload.

For fifty years we have listened to the counsel and advice of this sage of Marengo. That he is orthodox in his teachings, there has never been any question. If there had been, it would have been immediately dispelled by the knowledge of his remarkable yields of honey covering a period of many years, and the quality of his production. Said one of the largest buyers of comb honey in New York, "Dr. Miller's honey is always fine; and, what is more, it is always graded honestly." Indeed, if we mistake not, his crops have been contracted for and sold some seasons even before they were produced.

Beautiful in spirit, with an ever abiding faith in God, his sentences, even from the printed page, almost sparkle with the good will that flows out from the man. One is prepared to love him, even before he sees him; but when one meets him and talks with him face to face he realizes that, while the printed page reveals much, it does not show all of the kindly spirit back of "the smile that won't come off."

Dr. E. F. Phillips, of the Bureau of Entomology, Washington, D. C., a year ago this winter, desiring to get some data on the subject of wintering, visited Dr. Miller. On his way back he stopped at Medina. Said he, "Mr. Root, you have said a good deal in praise of Dr. Miller. He deserves it all. He is certainly a grand old man."

If there is any one else on this continent who can dispute Dr. Miller's claim to the title of "Grand Old Man of Beedom," we have never had the pleasure of his acquaintance.

Some years ago we read the book, "Ten Acres Enough," and it was enough to support a big family. We hear much nowadays about "more bees." What is the matter of making a few bees do more? Now comes Dr. Miller who might write a book on "Seventy-three Colonies Enough." If he did, he would talk about greater efficiency than we are practicing, perhaps.

THE HAND SYSTEM OF PRODUCING COMB HONEY IN SECTIONS.

REFERRING to our editorial on page 791, in regard to the system described by Mr. Hand on page 805, the latter writes as follows:

I thank you for the fair and impartial manner in which you reviewed the points in my section-honey system in the editorial department. There are two points, however, that I should like to have mentioned in another editorial. First, you say, "When bees start to draw out foundation they also begin to store nectar in it at the same time." I think you are

mistaken here; for as a result of quite extensive observation I have found that $\frac{1}{4}$ inch is the minimum depth of cells in which bees store nectar to any extent. Since such will be as readily accepted and give better results than deeper cells, this objection is not valid. Second, your statement that thin foundation has a disagreeable way of sagging and buckling in shallow frames calls to mind the fact that we do not use raw foundation for any purpose whatever—that is, foundation that has not been revamped by painting the surface with warm melted wax applied with a brush. If too hot the wax will flow into the cells and thicken the midrib; if just right it will adhere to the side walls, and build them up so as to resemble closely that which has been worked by the bees. It will not buckle; and those who have used it will attest to the eagerness with which bees accept it. Indeed, I'm not sure that it will not supplant drawn foundation in the spontaneous control of swarming; in which case all will be clear sailing.

Birmingham, Ohio, Nov. 21.

J. E. HAND.

Regarding the first sentence, when bees start to draw out foundation, much will depend on locality and the strength of the honey-flow. There are times when bees are prepared to jam in nectar as soon as the cells begin to be drawn out.

In regard to the second point, it would be our impression that the painting of the surface of the foundation with warm melted wax would eliminate the buckling and the stretching; but would it not leave a disagreeable midrib in the combs after it was drawn out and filled with honey? Perhaps a better plan would be to use a heavier grade of foundation to start with, thus making the midrib uniform throughout. One or two of our correspondents have said if we would use brood foundation in sections the bees would accept it much more readily than the ordinary thin super or the extra thin; that the midrib in the finished comb honey would not be nearly as pronounced as one would imagine. We tried it on a small scale this summer, and were surprised to find that this was so; indeed, if special attention had not been called to it we doubt if we would have noticed it.

RETROSPECT FOR 1913; SOME IMPORTANT APICULTURAL HAPPENINGS DURING THE YEAR.

As we look back over the year that is just closing, a number of notable things have happened in the bee world. First and foremost we are safe in saying that 1913 will go down in apicultural history as having given the largest crop of clover honey that has been known in a couple of decades. Notwithstanding there have been enormous sales and a great consumption of honey, immense quantities of extracted honey are stored seeking a market. This, naturally, has eased up prices a little. The emphatic lesson that comes to us all is that we should

develop our local markets, and not rush in more honey to the great commercial centers.

The year 1913 has seen extremes of weather conditions. While these extremes have been local they have been none the less record-breakers. First we had the Southern California freeze; then the floods in Nebraska and Ohio, and then the snow blizzard south of the Great Lakes. They all wrought fearful damage to property; but, fortunately, no great harm came to the bees.

The year 1913 has witnessed the enactment of an unusual amount of foul-brood legislation. Several States have passed new laws outright, and others have made important amendments to the old laws. Among the States that have had foul-brood legislation during 1913 of some sort may be mentioned the following: California, Connecticut, Idaho, Iowa, Minnesota, Michigan, Nevada, Pennsylvania, Texas, and Utah.

In the line of national legislation has come the enactment of a new tariff law by which the tariff on honey per gallon has been cut down from 20 cents to 10. This means a little less than a cent a pound. What effect this is going to have on the cheaper grades of honey in this country remains to be seen; but so far it has had no apparent effect. Parcel post came in with 1913, and it has come to stay. It is expected that there will be a general reduction of express rates to compete with parcel post. All this goes to help the beekeeper seeking to find a market for his product.

No important invention has been brought out during 1913; but a number of improvements have been made, not only in devices but in methods. Among the last mentioned we should unhesitatingly put to the forefront the Arthur C. Miller direct method of introducing queens with smoke—a method that practically insures the safe introduction of not only laying but of virgin queens. It is not only reliable, but saves from two to four days of valuable time. Reports from all over the United States from queen-breeders and honey-producers alike universally agree that this is one of the greatest tricks of the trade given in 1913.

Among improvements and inventions may be mentioned the Arthur F. Hodgson ventilated escape-board, described on page 577.

Great improvements have been made in shipping bees without combs. Combless packages of bees have been sent to many distant points in the United States by the use of water, and with the loss of only about a dozen bees to the pound. As there are about 4800 bees to the pound the percentage of loss is only $\frac{1}{4}$ of one per cent. But it should not be understood that *all* combless

packages of bees went through in good order. Some arrived at their destination with a loss of 75 per cent; but investigation has shown that in most cases, if not in all of them, the cause of death was due to a leakage in the water-container. At all events, when the bees arrived at their destination the water-bottles were entirely empty.

The other substantial improvements that have been made are in capping-melter machinery, honey-pumps, and power honey-extractors.

The tendency on the part of all large honey-producers has been decidedly toward the introduction of power machinery for taking honey off the hives. There is a reason for this, and that is the high cost of labor that often can not be secured at any price when it is the most needed. It is actually cheaper for the large honey-producer to pay interest and depreciation on his investment of machinery than to try to hire help which he can not get, or lose a substantial percentage of his crop.

There is another tendency; and that is, to make the production of honey a special line of business. While the backlotter is much more in evidence also, the careless, don't-read-the-bee-papers farmer class of beekeepers is being eliminated by bee disease. While the years 1910, 1911, and 1912 showed this process of elimination was going on, 1913 has seen the field in many cases turned over to the specialist. We can point to scores of places where this has occurred, especially where European foul brood has wiped black bees and their owners out of existence.

During the early part of 1913 the *Western Honey Bee*, published by the California State Beekeepers' Association, was started. Its purpose was to get the beekeepers of the Pacific coast in closer touch; and, apparently, it has succeeded in its mission. During this year, also, the *Canadian Bee Journal* was absorbed by the *Canadian Horticulturist*. The bee part of it is ably edited by the Provincial Apiarist, Prof. Pettit, at Guelph, Ont., Can.

Among the deaths of notable beekeepers that should be mentioned for 1913 is Oliver Foster, of Boulder, Col., who died March 12; Dan White, of New London, Ohio, who died June 2; Wm. McEvoy, of Woodburn, Ontario, and I. R. Good, of Marion, Ind., who died Oct. 5.

Thus, gradually, some of the brilliant lights in beedom are being snuffed out; and the few remaining that bridge the past to the present can nearly all be counted on the fingers of one's hand.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

GERMAN bee journals are telling about the Root Co. sending bees in wire-cloth cages, the food being in a tin can out of which the thick sugar-syrup flows drop by drop. Good German friends; that tin can contains only water, and the food is the usual queen-candy.

IN Europe it has for years been considered by many quite important to cage the old queen for a time, and then to introduce the new queen in the same cage. S. Cheatham's plan, p. 776, of half killing the old queen, and then putting her and the new queen in the same cage seems a modification of the European plan, and looks like an improvement.

ZANDER is quoted, *Bienen-Vater*, 251, as giving the following figures to show the great difference in consumption of stores caused by brood-rearing:

Dec., 150 grams (.33 lb.), no brood.
Jan., 700 grams (1.54 lb.), very little brood
Feb., 1100 grams (2.43 lb.), very little brood
Mar., 2100 grams (4.63 lb.), very little brood
Apr., 2900 grams (6.38 lb.) increasing brood

MR. BEGINNER, it may be that an entrance $\frac{3}{8}$ or $\frac{1}{2}$ inch deep in hot weather is all right for Frank McMurray, p. 819; but before settling down on that, do a little experimenting to see if an entrance two inches deep is not better for *you*. I'm pretty sure it is for me. [We have tried both wide and narrow entrances here at Medina, but very much prefer the former. In other words, Dr. Miller's experience is quite in line with ours.—ED.]

D. M. MACDONALD, *British Bee Journal*, 315, advises a change of queens when a colony daubs too much propolis on sections, and says: "It is curious how even the *same* bees desist under the benign influence of a new queen. One would not wonder at her own progeny ceasing to over-propolize, but that her presence should have a purifying influence on her predecessor's children is nothing short of a marvel." That's in line with my observation that, when the queen of a cross colony is replaced by a queen of gentle stock, the colony becomes gentle long before the progeny of the old queen have disappeared.

IN the multitude of discussion in the papers about the high cost of living there is much testimony to the effect that the producer of fruits, vegetables, etc., does as well as the average, or better, if he gets 30 per cent of what the consumer pays. How is it with the beekeeper? If his honey is sold

on commission at 16 cents, he will get somewhere around $13\frac{1}{2}$, after deduction for commission, freight, and drayage. The consumer will likely pay 25 cents a section, or near 30 cents a pound; $13\frac{1}{2}$ is 45 per cent of 30, and 45 per cent looks pretty good beside 30 per cent. So the beekeeper isn't as bad off as some others, is he?

DOES honey sell for its real value? Isn't there just as much nourishment and as much good taste in a pound of honey as in a pound of butter? And yet the dairyman gets twice as much for butter as the beekeeper gets for honey. On the other hand, the consumer can get four or five times as much sugar as honey for the same money. There's many a father whose child's health is being bankrupted by too free use of sugar, who would gladly pay 50 cents a pound for honey if he only knew that its substitution for sugar would save the health, perhaps the life, of his child. What can be done about it? Don't ask me.

MORLEY PETTIT says that in Ontario Province less than a fourth of the honey is comb; so the crop-report committee makes its report in terms of extracted, including comb, however, by counting one pound of comb as two of extracted, taking the cost of production into account, and thus the average of 63 pounds is reached. He prods us folks on this side the line just a bit for confusing the terms Ontario and Canada. Ontario is no more Canada than New York is United States. Quebec Province produces more section honey than extracted; but the Ontario Association has nothing to do with that Province, and speaks only for its own Province.

AFTER reading the well-given instruction for fastening wire in foundation, p. 799, some may still prefer to use the plan invented by Miss Emma M. Wilson, which she describes thus:

"After the foundation is put in place over the wire on the board, the whole thing is lifted off the board, and moved over the flame of a common gasoline-stove high enough not to melt the foundation, but to heat the wire enough to imbed it in the wax, letting the flame constantly follow the direction of the wire. The frame is moved with one hand, while the fingers of the other hand press very lightly over the foundation."

I think this makes a better job than the spur. The wire is hot while the wax remains cool, except where the wire melts it, and

the wire is so thoroughly imbedded that you would hardly know on which side it was. But this plan would hardly allow the wires to be curved.

I WONDER, Mr. Editor, if it will be too egotistical for me to take space here to tell what a good time I'm having in Washington, D. C. I left cousin Dave Redpath and his daughter Maggie to occupy the home, so that all care could be left behind; brought all my family, consisting of my wife and her sister, and for the first time in many a year I am giving myself up to the luxury of a vacation. With a thoroughly informed guide in the shape of an only son, we're doing the town and having the time of our lives. I supposed there was much to be seen and enjoyed in Washington, but I never dreamed how much; and they say "the half has not been told." I was heavily in debt before; but this adds greatly to the debt of gratitude I owe to the loving heavenly Father for his many, many loving kindnesses unto me.

REPLYING to ye editor, p. 822, bees paint the inside of a hive more or less with propolis; but is that exactly the same as having both inside and outside painted? At any rate, I've known the only painted hive in a cellar to be the only one having wet and moldy combs. [Paint inside and out might make a board more impervious to moisture than one coated inside only with bee-glue. Is it not possible that the wet moldy combs in that one painted hive to which you refer were due to some other conditions? We have for years used painted hives in wintering in one of our cellars, and we seldom have moldy combs in any of those hives. But in another cellar, a little cooler, the moisture and sweat are much more in evidence. If a powerful colony were housed in a painted hive, and a medium or weak colony in an unpainted one, we would naturally expect more moisture with the former than with the latter, and paint would not be the cause of it either. In other words, is it not possible that the one painted hive to which you refer had a stronger colony or a contracted entrance? or was it located in a part of the cellar that was cooler than where the other bees were situated?—Ed.]

HERE'S what the bees did for us the season of 1913: A dozen or so of the poorer colonies were allowed to work on extracting-combs. That left 72 for sections. The middle of May another colony was made from extra brood of the 72, making 73 that stored in sections. Close credit was given each colony for all sections it gave, whether finished or not. So a credit of 100 sections might mean 95 finished sections and enough

unfinished to be the equivalent of five finished. Note, too, that the credits are in sections, not pounds. The poorest colony gave 68 sections; the best gave 402 sections; the average for the 72 was 266.74.

Now don't ask me if there isn't some mistake in those figures. I've looked them over carefully, and they're all right. And then to think that an upstart of an editor should hint that I hadn't been giving "attention largely to honey-producers"! [This is almost a record-breaking yield of honey—nearly 20,000 lbs. of comb honey from 73 colonies. This is going some, especially for a man past 82 years of age. Of course, we know he had good help in his women-folks; but they are not as strong and active as they were 40 years ago. If any of our readers have produced as large a crop of comb honey from 75 or even 100 colonies we wish they would hold up their hands.]

We don't know what Dr. Miller is talking about, much less find the reference. Never mind; he secured a big crop; but, as he often modestly says, "I don't know." Yet what he does not know about producing comb honey is probably not worth much.—Ed.]

WE are told that, when a bee stings, it will circle about until it draws the sting out of the flesh, and escape unharmed. I think that's exceptional. Oftener it takes an immediate forcible departure, leaving its sting behind. But when it does perform the circling act, the sting does not always come out of the flesh. One day last summer a bee stung my hand; and as it began to circle I watched it. First it circled in one direction for a time, then in the other. Then it tried to fly away. Failing in that it fell to circling again, and directly took flight, leaving its sting in my hand. [In our public demonstrations we have caused bees to sting our arms and hands. This is done by picking a bee up by the wings and gently pressing it against the flesh of the arm until it inserts its sting. We then let go of the wings, and immediately it begins to tug away in an effort to free itself. Generally it will whirl in a circle. Sometimes it will whirl one way, and then back up and whirl the other way. But in dozens of cases when we have tried this, we have never known of an instance where it extracted its sting. When it does free itself it loses its sting and poison-bag, and sometimes a small section of the abdomen. Unlike that of the yellowjackets and hornets, the sting of the bee has barbs. These latter cause the sting to stick in the flesh. Thus a honeybee can use its weapon but once; but a yellowjacket or a hornet can keep on jabbing because its sting is not barbed.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

J. L. Byer, page 670, Oct. 1, says: "For our locality 'bees always strong' is the only safe rule if best results are to be obtained." This is a pretty safe rule in most places if not everywhere.

* * *

On page 692, Oct. 1, in a footnote the editor says in regard to sac brood, "The only damage it does is to kill half a dozen or so of larvæ out of twenty-five or thirty thousand other individual larvæ in the hive." In my experience it is much more destructive than that. It is much worse some years than others. Perhaps the worst thing about it is that it is often mistaken by experienced beekeepers for foul brood, and the combs destroyed to get rid of it.

* * *

Mr. Chadwick is right, p. 519, as to the necessity of putting up honey in small packages if one wishes to secure the best price. Yet it seems doubtful whether it can be made to pay if the beekeeper can turn his time to profit at something else. "If fifty or a hundred leading producers could ship their honey to a central point to be graded, and put up in packages to suit the retail trade, this object could be accomplished and a neat profit could be turned into the pockets of the producers." Co-operation!

* * *

I appreciate what friend Doolittle says on page 710, Oct. 15, about difference in bees, especially in regard to temper. An inspector has a chance to learn about the disposition of bees as he goes from one yard to another, opening hives. I have found some as gentle as flies, and about as worthless, while others are as fierce and untamable as a tiger. I can't find words to describe their disagreeable disposition. It is the part of wisdom to get rid of such, and replace with such as can be handled, with care, with comfort.

* * *

P. C. Chadwick says, p. 600, Sept. 1, that both Mr. Foster and Byer condemn a record book where many bees are kept, and I believe they are right, especially in sections where there is much propolis, as I found years ago that I would get more or less propolis on the leaves, and they would soon stick together, and make a book a nuisance. Better by far a board five inches wide and four feet long. The number of the hives set near one edge and a set of signs as required set opposite each number.

Soft pine or basswood is best for such a record-board.

* * *

On page 707, Oct. 15, I mentioned sawing a slot into the end-bars for the wiring of frames. After seeing it, Mr. S. A. Niver, of Jamesville, Cal., wrote me of a device for piercing the end-bars where you have no machine with which to do it. He says he had some 10,000 end-bars cut out before reaching his present location, but had no machine to bore the holes for wires, and so set to work and made one. Here is his description: "Just a piece 2 x 6, about 6 feet long, with legs. Another piece of 2 x 6, about one foot long on top of the horse, sliding forward and back with the brads to punch the holes in the end-bars, fixed firmly to the sliding piece, which is worked by a lever bolted through the horse (as a fulcrum) and the sliding block. Just straddle the horse; put the foot on the lever, put an end-bar in the guide slot, and give a little kick; then you have three holes, nice and smooth. The motion is short and easy, and you have both hands to handle bars with, besides being seated. It beats boring, both in speed and good work. You are Yankee enough to get the idea and make one."

* * *

In a Straw on p. 705, Oct. 1, Dr. Miller tells of his failure to secure as satisfactory results in preventing swarming as others by raising his brood-chambers up on four blocks and thus giving an abundance of ventilation; and the editor, in a footnote, makes what seems to me a very significant statement. He says, "While you have been breeding toward non-swarmers, Mr. Burt has given his attention largely to honey-producers." Now, it has occurred to me that the surest way to produce non-swarmers may be to develop to the highest degree the honey-gathering instinct. If we develop one quality it is often at the expense of some other. The draft horse is not likely to be a fast road horse, or the fast horse a good draft animal. Our best dairy cows are not the ones the butcher selects for his use. One of the best cows I ever owned would be the last one would select for beef. The stronger the instinct for gathering honey is developed, the less will be the disposition to swarm, I believe. I have sometimes had colonies where the instinct for swarming was much stronger than that for honey-gathering, and if they could not swarm they would do nothing.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

I believe much of my failure in direct introduction was due to the trouble I was having with robbers at the time. When a hive is opened long enough to allow the robbers to get in, there is going to be some trouble, and that trouble will fall on a strange queen as quickly as on a strange worker.

* * *

In the November issue of the *American Bee Journal* I notice that Mr. C. I. Graham was convicted in Nevada for violating the foul-brood laws and scattering the disease. This gentleman, I believe, is the same person who scattered disease in many parts of this State, and was prosecuted once that I have knowledge of, being convicted and fined the sum of fifty dollars.

* * *

November has laid the foundation for our next year's honey crop, heavy rains having fallen over the entire State—nearly three inches for the month so far, and I believe that is a fair average over the State. An abundance of filaree has already started; in fact, the whole earth is becoming a sward. Such a heavy rain at this time in the season is sure to be a lasting benefit, and an insurance of early bloom for spring breeding. There is a general feeling of encouragement, as well as belief that we have received only a little of our winter's moisture.

* * *

Dr. Miller, I am not sure that the food I eat has no effect on the color of my blood. Any way, I have heard of "blue-blooded" Yankees and "red-blooded" Southerners. Are you sure that it was the soil that made the difference in the color of your apples? At the present time I am laboring under the impression that a plant, its nectar or its fruit, does not acquire its color from the soil but from the air. There is a common belief that all plants come from the soil entirely, when the fact is that only a comparatively small amount of plant substance is taken from that source. Plant life and growth are for the most part comprised of matter taken from the carbonic acid in the air, and that, according to my knowledge, is the chief source of the solid matter of plants. Through the leaves the carbonic acid is taken from the air, then transformed into carbon, hydrogen, with a little oxygen, by various stages into starches, sugars, etc., the chief mission of the roots being to furnish water, nitrogen, sulphur, and phosphates in solution, which are combined in the plant structure to complete it. Aside

from the water, which is later almost eliminated by the other elements taken from the air, the roots furnish only a small portion of the plant structure. The composition of honey is said to be four-fifths carbohydrates and one fifth water. The water may be taken all or in part from the soil; but the carbohydrates are taken mostly if not entirely from the air; hence the conclusion that honey is for the most part from the air and not the soil. Now, if honey is from the air principally, it appeals to my reason that it is the chemical action of the particular plant from which it is produced that colors the nectar. Conditions being largely the same in the plant food of the air, I fail to see where the difference in the soil on this or the other side of the fence would affect the color of the nectar, for that, so to speak, illustrates the change of soils in some localities.

Here in my own city there are two kinds of soil divided abruptly by a low ridge not originally more than fifteen feet high. On one side of the town is a long slope of red decomposed granite soil, and on the other a sandy gravel soil, evidently made by the deposits of the Santa Ana River from years and perhaps centuries of overflows. Every plant has its peculiar methods of manufacturing the elements it gathers into the parts that constitute its life substance; and if it should deviate from that process it would cease to be the same plant. If the coloring matter of honey is taken up by the roots promiscuously, as some seem to believe, it may vary in color; but if formed by the action of the plant's own little manufacturing establishment, as I believe it is, from elements derived principally from the air, then I see no hopes for those who claim the soil makes the change. I do not believe the soil changes the color of your apples, doctor. The influence of the sun and light may be the cause, for sunlight is the deciding element in the coloring of plant life; and no color can be produced in them without its influence. Look at the colorless apples on the inner branches of your trees that have had no sunlight, and have received only that portion of the air that has been drained of the carbonic acid by the outer leaves. It may be that the elements taken up by the roots, combined with those collected by the leaves, have the deciding action in coloring the nectar and fruit. On that point I am not fully decided, and am open to conviction. The above, however, is my opinion at the present time.

Beekkeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

NOVEMBER HONEY-FLOWS.

When you meet Northerners on the trains (from almost any State in the North), and you hear them talking about cold weather there at this time of the year it seems hardly possible that there should be such a great difference in the climate as compared with the warm, almost summer weather we are having here in the southernmost portion of Texas. What is more surprising is that the bees here are in the midst of a heavy honey-flow, storing much honey and building the prettiest white comb honey. The source of this abundance of nectar at this time of the year is a very thorny, rough, and otherwise unimportant-looking brush, called "coma." Whole areas of hundreds of acres are in immediate reach of some of the apiaries here, and these thickets are so dense and thorny in most places that they can not be penetrated by man afoot or horseback before cutting a path through them.

The small whitish star-shaped flowers cover the entire limbs and branches densely, and yield abundantly. The honey is of light-amber color and of fair flavor, although it has a peculiar twang to it. It reminded me of the twang of buckwheat honey, but is not so apparent, and the honey is not at all dark in color. Those who have acquired a taste for this coma honey seem to prefer it to the milder-flavored honeys, very much as the "buckwheaters" are fond of the stronger-flavored buckwheat honey.

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REAL UP-TO-NOW BEEKEEPING.

On my trip through the Rio Grande Valley I had the great pleasure of stopping over night and a part of two days with my old friend Grant Anderson, of San Benito, Texas. Mr. Anderson is one of the leading queen-raisers of the country, and few are so ideally located as he is. He dwells amid a profusion of the honey-yielding brush and other plants, and in a rich irrigated section, with plenty of unbroken or "wild" land to make it an excellent honey location as well as being admirably suited for queen-rearing. And, further, he resides near the bank of a great water-course, or "arroyo," as it is called. He has a large gasoline-launch with which he motors from one apiary to another. All his apiaries are located on the banks of this arroyo, and the "Queen B," as the launch is called, not only carries Mr. An-

derson and his sturdy sons, who help their father in the work, but also all of the supplies. All of the honey is freighted home on this same "Queen B." Talk about pleasures of real motoring without the troubles of bad roads, tire troubles, and all those things common to road motoring! The early morning ride that I enjoyed caused a thrill of enthusiasm to penetrate every part of my being. Here I saw real up-to-now beekeeping, with the expense of travel to and from the beeyards cut down to the minimum.

* * *

IN EXTREME SOUTHWEST TEXAS.

The writer has been on a lecture-trip for the State Department of Agriculture for an entire month, with one or two day and night lectures every day. The trip took us through what is known as the mid-coast country of Texas, and then through the Rio Grande Valley to Brownsville. At this point we also made a short excursion into Mexico.

This trip is especially interesting, for the reason that the lower Rio Grande Valley is well adapted to beekeeping, almost every one of the great number of shrubs and other plant growths yielding more or less nectar or pollen. All the main nectar-yielders characteristic of Southwest Texas, the mesquite, catclaw, huajilla, coma, and dozens of others, are here in abundance. There are yet large areas without any bees; and that territory adjacent to the large irrigation projects is the most favorable location for apiaries.

One thing is certain, however—a great deal of this yet raw land will be rapidly put into cultivation; but there being so much of this, there will be many good locations for apiaries for quite a long time.

The climate here is almost ideal, and plenty of water is in easy reach. Wherever the irrigation canals have been extended makes it possible to grow a great variety of things associated with semi-tropical conditions. Oranges and other citrus fruits yield in abundance if properly cared for. The beautiful homes with the grounds planted with palms, banana plants, and other ornamentals also as well as fruit-bearing trees and plants are very attractive indeed.

One thing I want the reader to remember is that this is not a place to get rich quick without mixing muscle and brain with the soil and water.

Conversations with Doolittle

At Borodino, New York.

COMB FOUNDATION IN SECTIONS; THE MODERN SECTIONS; THE OLD TWO-POUND SECTION.

"I wish to get my sections all ready for the season of 1914 this winter, and I wish to know how much foundation to put in each section."

"I think the general custom at the present time is to fill each section full, or as nearly so as may be, in order that the combs may be attached securely to the section all around. This, with the incentive given the bees to draw out from this sheet of foundation a full comb all at once, and cap the whole over at one time, not only gives a larger yield of section honey, but a much more marketable product as well."

"Yes; but is it the best thing for the beekeeper to do? I was talking with an old man the other day who had kept bees for nearly half a century, and he told me that those making a specialty in bees and comb honey were very largely to blame for the vast amount of work devolving on the comb-honey producer, as well as for the low price of comb honey as compared with the high cost of living, through the advance in price of what such honey-producer had to buy with the cash obtained for his honey. He said that some thirty-five years ago they had a two-pound section box of a size which exactly suited the consumer; that this box was glassed so as to protect it in handling, also to keep out flies, ants, and dust. In the top of each box was a starter of natural comb, and honey stored in this manner brought the producer from 25 to 40 cents per pound, that price being profitable to the producer, and a joy to the lovers of comb honey. Now the average weight of sections when filled is about 14 ounces, thus making the producer handle two sections where he handled only one before; and by using plain sections with no wider sides than ends, no glass can be used to keep out vermin, flies, or dust, and no protection in handling is possible. He asked me this question: 'When those familiar with the handling of these plain sections occasionally give them a bruise or dig, what can be expected of the novice or retailer?' He then went on to tell how he had seen, in market, cases of modern honey being retailed from the counter, the combs of which were bruised and leaking, where fingers had mutilated the nice cappings in handling till all was a dauby and sticky mess, to the disgust of the seller; and winding up he asked, 'Who is responsible for this state of affairs?' As I could

not answer, he said with great emphasis, '*The beekeeping specialists.*'"

"This reminds me of what I used to hear years ago. There may be a grain of truth regarding beekeepers causing themselves more work and trouble by bringing in the one-pound sections, for, so far as I know, consumers never called for any thing smaller than the two-pound section until the smaller ones were brought forward by the beekeepers themselves. And I must admit that, with the average person, the liability to 'finger mark' on the nice cappings to the comb has some truth in it also, but hardly enough to make good the disadvantages of the older things used a third of a century ago. But you have not touched on the foundation matter which you wanted to know about."

"Yes; I will come to that next. This same man said that beekeeping specialists had brought out comb foundation, and urged it, till nearly every one thought he must pay out a good lot of the selling price of comb honey for the purchase of this foundation, and do a whole lot of extra work in order that the sections might be filled with it. And not only this extra cost, but it makes the honey tough to eat. 'This last,' he said, 'is really a more important subject than many of the beekeepers realize.'"

"But did he not tell you something about the other side of the matter—how, with full sheets of thin foundation, the bees do much more work in the sections; how the cells are regular and even; how it is a pleasure to look at the even cappings of the combs, and, above all else, how honey built on foundation will stand shipment to distant markets two to one better than that built by the bees from a starter of natural comb? I fear that your old friend has been using foundation made for the brood-chamber rather than that for sections. That made for sections at the present time often runs as thin as any natural comb ever built by the bees—so thin that there is 18 square feet in one pound. This wax may not be quite as brittle as the white flakes produced by the bees, but it is so thin that no reasonable consumer will say aught against it. With such thin foundation as this its advantages are so great that it is not likely it will be dispensed with when raising comb honey; and if you use the thinnest obtainable, and put full sheets in your sections, I think you will not injure the market for comb honey in the least, and you will have much better success in the pursuit of apiculture besides."

General Correspondence

BEEKEEPING IN ONTARIO

A Glimpse of Some of the Apiaries where Honey is Produced on a Large Scale

BY H. H. ROOT

Continued from last issue

On the last day of my visit in Canada, as described in the last issue, Mr. Holtermann and Glen took me in their machine across the country to visit other beekeepers in that locality. I wish that I might give a full account of our trip that day through the beautiful country in southern Ontario, and tell more about the beekeepers that we met, but it will be impossible to go into much detail.

We called at the apiary of Mr. Iver Holtermann, another son of R. F. Holtermann. As would be expected, he also uses the twelve-frame hive and winters in the large cases similar to those used by his father. Fig. 10 gives a glimpse of his yard at a time when the extracting was about half finished. Mr. Ivar Holtermann also has a power extractor, although it is the regular eight-frame size, and an engine and honey-pump. He does most of his extracting, uncapping and all, himself. By the

way, when I went over to Canada I had a feeling that the twelve-frame hive was about two frames too large; but my feelings in this respect grew weaker while I was there, and have been much less perceptible ever since. It is true that it takes a pretty husky man to lift around twelve-frame supers of honey; but aside from the one disadvantage of the greater weight, I can not really see much to criticise in the twelve-frame hive. They certainly enable the beekeeper to control swarming more easily; and if, for any reason, a smaller brood-chamber is desired, it is very easy to use a couple of dummies. In other words, the twelve-frame hive certainly permits as large or as small a brood-chamber as any one could possibly want. It is easy to have a ten-frame or even an eight-frame brood-chamber in a twelve-frame hive, but rather difficult to have a twelve-frame brood-chamber in a ten-frame hive.

We called at the home apiary of Mr. James Armstrong, whom I remembered as being for a time in charge of the Ontario honey exhibit at the Pan-American Exposition. Mr. Armstrong was away on an inspecting trip, as he is a district inspector of Ontario; but we made ourselves at home

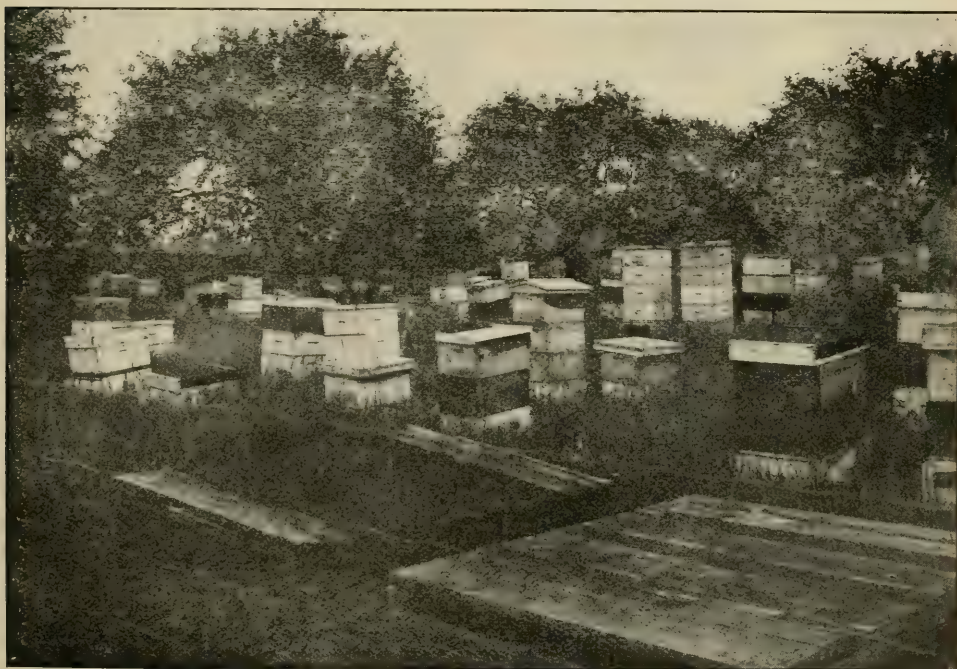


FIG. 10.—Apiary of Ivar Holtermann.



FIG. 11.—Apiary of Jas. Armstrong, Inspector of Apiaries for a district in Ontario.

in his yard, and took a picture of one corner of it which is shown in Fig. 11. The location of the yard made it impossible to secure any thing like a comprehensive view of the whole apiary. Mr. Armstrong uses eight-frame hives, as will be noticed, and he expected to get at his extracting soon. Hives tiered up in this way always look good to me.

There is considerable sweet clover along the roadside in certain parts of southern Ontario; but as yet it is still considered a noxious weed, and the farmers are constantly neglecting important work to keep the sweet clover along the roadside mowed down. When the experiment stations of so many of our States are publishing bulletins telling of the value of sweet clover, and when the United States Department of Agriculture has published such a complete bulletin telling of the value of sweet clover to the soil, etc., it seems strange that there should still be so many localities, in our own country too, where hundreds of dollars are spent right along in the frantic attempt to wipe out every sprig of sweet clover that dares show itself above the surface of the soil. If it were not such a serious matter it would seem ridiculous to think of all of the time and money spent to combat so terrible(?) a foe. Sweet clover is not a foe to the farmers at all in the first place; and in the second it is the easiest thing in the world to kill off if it is not wanted. In some places in Ontario it grows very luxuriantly,

Fig. 12. One of the roads that we passed had a solid bank of white sweet clover on the left, and another solid bank of the yellow variety on the right, Fig. 13. The shorter, less bushy growth of the yellow sweet clover, shows plainly.

We called at the apiary of Mr. Arthur F. Hodgson, who spent three seasons with Mr. Holtermann, but were disappointed in not finding him at home. We took a picture of his escape-board, the principal features of which were set forth in his article on page 577, Aug. 15. The picture in question is shown in Fig. 14. Mr. Holtermann has never used bee-escapes to amount to any thing, for the reason that honey removed by the use of the ordinary bee-escape board is cold, and therefore very difficult to extract rapidly. The new board certainly overcomes this undesirable feature; and Mr. Holtermann, who has been so long an advocate of shaking and brushing bees from extracting-combs, told me just before I left that he believed he would use a couple of hundred escapes of this pattern himself another season.

Since the illustration of this ventilated escape-board in the Aug. 15th issue there have been a number of objections suggested, which may or may not be serious. It is true that a wire-cloth escape-board is not a very rigid affair, and it is possible that they would get broken pretty easily, especially if the bees build brace-combs to the wire cloth or when the frames were badly



FIG. 12.—A luxuriant growth of white sweet clover near Selkirk, Ont.

stuck to the brood-chamber. Doubtless rather more care should be taken in loosening this type of board than the regular more rigid type. Mr. Ivar Holtermann admitted that bees attach brace-combs to the wire cloth somewhat, but thought this not a serious objection. It has been suggested that bees would not go down out of a super as readily, since they can see the light from the entrance through the wire cloth; and, finding themselves confined, might spend their time trying to get through the wire cloth directly above the entrance. Those who have used this board, however, insist that the bees go down through the escape just as readily as though it were located in the solid board.

In parting with Mr. Holtermann at the station, after the delightful trip that we had had, I renewed my promise to "come back again" next year. As the train moved away, I reflected that my friend is a successful business man who believes that there is more in life than the mere making of money. Even in the summer time when business obligations press hard he often takes the Sunday services in churches surrounding the section where his bees are located, thus making himself one of that great and steadily increasing class of Christian business men who believe in mixing religion and business.

HANDS ACROSS THE SEA

BY JOHN SMALLWOOD

I have been a constant reader of GLEANINGS for some time, for I greedily devour all literature anent bees or beekeeping. You know what Bacon, in the quaint phraseology of his day, says of books: "Some books are to be tasted, others swallowed, and some few to be chewed;" and GLEANINGS is one of the "few to be chewed." Yes, you have to chew it, and digest it too, because the modern beekeeper who would be abreast of the time must know what you are doing over there. We have scientific men galore in Europe, yet all the knowledge and all the discoveries are not to them. On your side, too, important investigations have been made, and with great success, in bacteriology, in the diseases of bees, in queen-raising, and in the best way to raise and market honey, and we are willing to be taught.

But it is not pleasant to note how seldom are the contributions to your columns which reach you from this country. They are almost as rare as flies in amber, or as the proverbial plums in a sailor's pudding. Why? I am sure it is not the fault of your editorial staff. The same arguments which compel me to read you apply also to you. Your staff are broad-minded enough to wish to gather in all that the world has to say



FIG. 13.—Sweet clover bordering the road—the white variety on the left and the yellow on the right.

about our craft. After sifting away the chaff, there is a bulk of wheat left. Why, then, is it? I can think of only one reply, not to our credit, and that is that we over here are too lazy. We are satisfied with contributions to our *Bee Journal* and *Record*—very good papers, and not to be surpassed for useful reading-matter; but we should keep more in touch with you.

Now, even across the Atlantic, I think I can hear some one say, "Practice what you preach. Set the example, and write yourself more frequently." Well, there are two or three ways of looking at that proposition. First of all, there are your editors to consider. They might not think my manuscripts worth the paper they are written on, or the penny stamp it costs to post, and forthwith throw it in the waste-paper basket (which I am informed is rather capacious), with the ejaculation, "What rubbish!" I almost think they would be right. When I come to think of it, my bump of conceit must be fairly well developed to have the "cheek" to tell other people what to do. Another way of looking at it (this time from my point of view), I could not pretend to do it. It is rather too tall an order. There are many "specialists" whose writings I am sure would interest you. I only attempt a chatty letter, with just occasionally a glimmering streak of wisdom, a friendly something now and then from the old country.

"The old country!" Why do we like you better than the other boys? Sentiment is out of fashion, does not exist, it is said.

Don't you believe it. It can not be gotten rid of. Why, you might just as well tell me the sun does not shine, or the earth does not go round. Why, then, do you call us "the old country," and why do we give you the place nearest to ourselves? (I seem to be always asking questions and answering them myself.) Because you are so knit together with us by blood relationship. Is there a single family in Great Britain, high or low, rich or poor, which has not got its offshoots with you, forming units of your great nation? and "blood is thicker much than water." Do we not both speak the same language? and, being related in kinship, are also related in the currency of thought and literature. These are strands in the mighty cable which lashes us inseparably together.

But we beekeepers—have we not another link to unite us? "There is a freemasonry in beekeeping; a beekeeper is a brother to fellow beekeepers all the world over." These golden words were said to me by Mr. T. W. Cowan. Would you have an object-lesson, an example? There is one at your door. Refer to the November issue of your contemporary, the *American Bee Journal*, and its very last words in the article, "With the Editor in Sunny France." "We are getting badly spoiled, for we are welcomed and feasted, and complimented everywhere. We did not realize that we could find so many friends in Europe." This, of course, might be expected to happen to Mr. Dadant, whose name, of course, is known where beekeeping

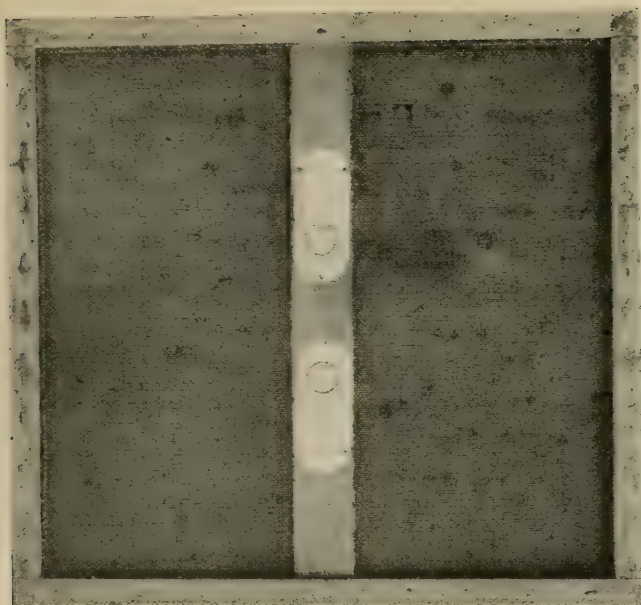


FIG. 14.—Arthur F. Hodgson's ventilated bee-escape board; heavy wire cloth is substituted for the thin board, and two escapes are used.

is known; but wandering over sunny France and fertile Italy with our Mr. Herrod, I, too, have had the same experience, the same open-hearted fraternal welcome. The fact of being a beekeeper was sufficient. The word was an "open sesame" to the hearts and welcomes of other brothers of the craft; ay, it was even a key to the knowledge of our hosts; for what beekeeper keeps his experiences locked within himself? We have no trade secrets. Your paper and every bee-paper in the world teems with enquiries from correspondents, neophytes, who would learn their faith, and you are pleased to teach them the A B C of Bee Culture, so that some day they may arrive at the X Y Z of perfect apiculture.

London, England.

A NEW METHOD OF SHAKING TO CURE FOUL BROOD

The McEvoy Plan Simplified; Inducing the Bees to Use up all Diseased Honey by Building Combs on Starters Attached to the Cover

BY W. A. BARSTOW

In treating foul brood when bees are shaken on to starters of comb foundation in regular frames these frames have to be shaken later on, one at a time, and this gives the bees on the last few frames a chance to eat some of the infected honey that possibly may be stored in the new combs built, and

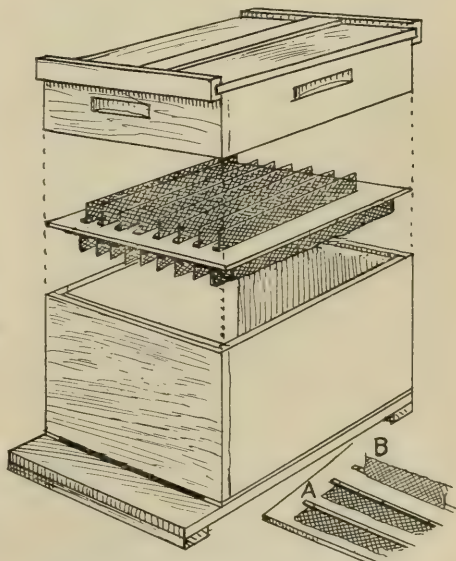
there is danger of getting some of this in the next comb that is drawn out.

My plan is to shake all the bees and queens into any kind of box of fair size (or a hive-body) having a plain cover the same size. On both sides of the cover board I tack two-inch starters by means of small nails and thin strips of wood, which starters are somewhat shorter than the length of the cover so that the bees will not stick them fast to the ends of the box. I put seven or eight starters on each side of this cover.

This cover prepared with starters on both sides I place over the box, and for the purpose of protecting the

starters on the upper side I put an empty super over it with a regular hive-cover on it.

After the bees have been drawing out the foundation for three or four days I lift off the empty super and set it to one side, take up the cover with the bees, and give a quick shake, dislodging all the bees with one jerk. Then I turn the cover over, thus giving the



Barstow's method of providing starters for the bees to work on when being treated for foul brood. A quick jar dislodges all the bees at once.

bees a new set of starters to work on, and put the empty super back on again, thus covering up the combs that the bees have made. By this plan I can shake a dozen colonies in the same time that would be required to shake one having starters in frames, and none of the bees have a chance to eat any of the diseased honey, for it is out of the way before they know what has happened.

In the evening or early morning one can make the rounds again, scrape off the combs on the upper side of the covers and dispose of them.

At the end of the second period of four days the bees can be shaken once more, this time into their new hive on frames of full sheets of foundation or combs, with or without brood, and all disease is gone.

The boxes used to shake the bees into can be cleaned out and used again, if necessary. If one desired to use wired starters to prevent any combs from breaking, this could be easily accomplished by nailing cleats or ends on the shaking cover the proper distance apart just to fit inside the box when the cover is in position, said cleats to support the wire. However, this would make more work, and it would be harder to put on the starters and also harder to clean off the combs. With the small amount of comb built it is not very heavy, and the danger of breakage is not great.

San Jose, Cal.

THAT SNOW BLIZZARD AT MEDINA, NOV. 9, 10

Loading that Car of Bees for Florida

BY E. R. ROOT

On Sunday, Nov. 9, as already reported in these columns, we had a blizzard of wind and snow that exceeded any thing we had had for the time of year in the memory of the oldest inhabitant. The front cover page of this issue shows a small section of our apiary, house-apiary in the background, the evergreens for windbreaks, and the barn in the rear. The little mounds of snow show where the hives were buried. Notwithstanding the apiary was thoroughly protected by windbreaks from the evergreens that are supposed to eliminate all driftings of snow, it will be seen the hives were clear out of sight.

The accompanying engravings will show the difficulties under which we labored in order to get our bees out of the snow and loaded on to the car that was to take them to Florida. In some cases (see Figs. 1 and 2) the men had to work up to their waists in shoveling out the damp heavy snow that



FIG. 1.—Hunting bees—not in the woods, but in the snow. Standing waist deep, a big cake of snow was first removed, exposing the top of the hive.

completely enveloped the hives. In another view (Fig. 5) will be seen the men loading the hives on a low-wheeled wagon with wide tires. It was impossible to use any sled or bobs on account of the depth of snow, and from the further fact that the runners would



FIG. 2.—Lifting up the hive through three feet of snow.



FIG. 3.—Hives pulled up and resting on the top of the snow, three or four feet above the ground.

cut through the loose damp snow to the bare ground.

It took us a day to dig those 300 colonies out of the snow and haul them to the warehouse where they could be put on the car. At first we decided to leave the bees under the snow and defer starting the car until after the snow had melted away; but examination in many cases showed that the bees were suffering from the want of air, as the snow was exceedingly dense and heavy, and because, further, in a few instances, the entrances were sealed with ice. We decided, therefore, that it was best to dig the bees out and put them in the warehouse, as there was no knowing what would happen if severe freezing weather should set in later. But it turned off warm, followed by slow rains; and on Nov. 14 the bees started on their long journey to the Southland. Mr. Marchant in charge reported that the weather was exceedingly warm, and he had some difficulty in keeping the bees quiet. We had planned on cold freezing weather. After it began to warm up we regretted having moved the bees off their summer stands. But it was too late to put them back, as the bees could not have been put in their original location; and the confusion of flight would have been enough to cause considerable trouble as well as a heavy loss of bees in the snow. We were, therefore, compelled to start whether the weather conditions were favorable or not, even though the bees were roaring, indicating their desire to get out and enjoy the warm balmy air. But all is well that ends well, and the bees arrived at

destination in good condition despite their noisy roaring.

In the matter of ventilation, the bees were provided with a wire-cloth screen on top, nailed to a two-inch rim and a wedge screen in the entrance. When we get ready to move the bees from the Southland to the North, the bottoms will be removed entirely, and a two-inch rim with screen will be secured to the top and bottom of each hive. But we had expected to move the bees south this winter in chilly or freezing weather, and it seemed unnecessary to provide for more

ventilation than at top and entrances.

The bottoms were secured to the hive-bodies by means of double-pointed crate staples (see Fig. 6). A two-inch rim with wire screen was secured to the top in the same way, on the day before we expected to move, or, as the sequel proved, the day before the big snow blizzard came on. But, fortunately, we placed on top of the screens ordinary super covers, and over these telescope covers as seen in the accom-



FIG. 4.—Carrying to the wagon.



FIG. 5.—Loading on wagon, the first stage of the 2000-mile journey to Florida.



FIG. 6.—Piled on the warehouse landing waiting for the car. Upper rims and screen already on, the covers left on also, for the time being.

panying illustrations. The intention was, of course, to remove the super and telescope covers in case it would prove to be too warm

ed three or four fold. On one arm of the V another angle is formed, as seen in the diagram accompanying. The purpose of the



FIG. 7.—Tacking on the entrance screen. These screens hold their position by friction, and do not need to be tacked until just before hives are loaded. A wide piece of galvanized wire cloth is bent in the shape of a long V or wedge, with a right-angle bend half an inch from one of the edges. The point of the V or wedge is pushed in until the right-angle bend comes flush with the front of the hive, the other edge lying flat on the alighting-board, thus affording plenty of surface for tacking. This plan gives much more surface than a plain vertical screen, and the bees can not crowd down, shutting off the air at the bottom.

for the bees in the car; but before loading they were left on.

Under Fig. 7 will be seen a little note describing the means for providing entrance ventilation. A straight piece of wire cloth, unless secured by strips of wood, will not hold its position readily over the $\frac{7}{8}$ -inch-deep entrance; and, what is more, it presents only $\frac{7}{8}$ inch by the width of the hive of air surface. By bending the strip of wire cloth into the shape of a letter V, and crowding this V-shaped piece into the entrance the air surface will be increas-

last fold is to provide a place for nailing at the top, as shown in Fig. 7.

In moving bees to outyards, if we close the entrances at all we put these bent pieces of wire cloth in the entrance, without nailing. Friction is sufficient to hold them in place, because the V-shaped strip of screen has a tendency to wedge against the top and bottom of the opening.

It would almost seem as if the fates were against us when we get ready to move a carload of bees. A year ago last spring, when we started to move our second car of bees from Florida we were nearly overwhelmed by a flood. The accompanying il-

BEES AND COLLEGE FINANCES

How a Young Lady Paid a Considerable Part of Her Expenses while at School with Money She Earned with Bees

BY FLORA M'INTYRE

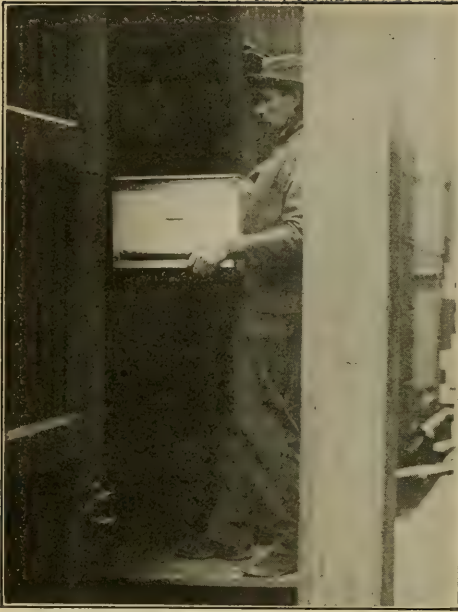


FIG. 8.—Loading into the car. Regular cover removed, a super-cover being left over the screen temporarily.

illustration shows the difficulties under which we worked at that time. Well, now, we did not expect floods or any thing else when we started south this winter. We certainly did not expect a blizzard of snow—something that never before had been seen at this time of the year. But it came just the same. Luck has been against us at the starts; but we do not mind it if it is only with us *at the finish*.

[For several years back an impression has gone out that a certain young lady in California put herself through college with the money she earned from her bees. Learning that it was Miss Flora McIntyre, of Ventura, Cal., we inquired if it would be possible for us to secure the particulars. We began by coaxing the mother to get her daughter to tell the story. We later got in touch with the young lady herself. The mother, Mrs. Harriet Wilkin McIntyre, is a daughter of the late R. Wilkin, one of the early honey-producers of California. Mr. Wilkin, with two or three other pioneers in the early days, about the time gold was discovered, showed to the beekeeping world that California had something besides gold within its borders, and that was—honey of a superior quality and quantity.

We were interested in securing this story, for two reasons. First, because there are many young men and women who are anxious to secure an education; and if they could use bees to contribute to their support while in college they would gladly avail themselves of the opportunity during vacation time. Second, we desired to get this story on account of the parentage of the young woman. Her father, J. F. McIntyre, was for many years proprietor of the famous Sespe apiary, where 500 colonies were kept in one yard year after year. This apiary is one of the most beautifully located, so far as mountain scenery is concerned, of any in the United States.

Mr. McIntyre was the first user of a power-driven reversible extractor in the United States if not in the world. It was one of his own devising; but instead of using a gasoline-motor he derived his motive force from a water motor fed by a stream on the mountain sides. This extractor was an automatic reversible, somewhat different from the style now made, but nevertheless one that did its work satisfactorily. Notwithstanding that this was a success, it has taken some years for the rest of the beekeeping world to catch on; and now power-driven extracting outfits are coming to be quite the fashion.

Mrs. McIntyre, a daughter of R. Wilkin, as al-



The flood hindered us in the second shipment.



Harriet Wilkin McIntyre with her five daughters, her son, and two sons-in-law. Flora McIntyre indicated by cross.

ready mentioned, would naturally marry a beekeeper; and so it is nothing strange that one of the girls, Flora, should have been a "victim of the bee fever from infancy," as she says.

We are very glad to present this story, not alone because of its intrinsic value, but because of the interesting photos that accompany it. The young lady very frankly tells her experiences; and the fact that these experiences cost her something should be a warning to others not to overdo while at school. As we know from past experience in our old college days, the usual college curriculum will give any student all he can possibly do without other work.

We will now let Miss McIntyre tell her own story. It is worth reading.—Ed.

The bees have sometimes been given the credit of paying my way through college. That is an exaggeration; they merely helped make it possible for me to spend three years at the University of California. The following is an account of what they really did in behalf of education—as nearly accurate as I can give it from memory.

The opportunity came after a severe illness had cut in half my third year at high school. With the arrival of the second spring I was strong enough to work with the bees, and was given the privilege of

conducting the queen-rearing for my own profit, provided I would supply at half price the queens needed for requeening in the home apiary.

I have been a victim of "bee-fever" from infancy, so the enterprise was a pleasure in itself. I had also helped with the bees ever since I could remember, which experience made it practical. Moreover, I was firmly determined to go to college some day, but was much in need of the wherewithal. This gave an added reason for my accepting with alacrity the work with the bees.

If I remember correctly I used some twenty-five eight-frame hives divided in two by a partition running lengthwise, making fifty nuclei in all. I began work with the swarming season, raising my queens in dipped cells. These were supplied with larvæ from selected colonies in the apiary, and placed in hives preparing to swarm. The nuclei I filled with bees by dividing regular colonies when they swarmed, giving two combs of brood with the adhering bees to each nucleus, substituting a queen-cell of my own rearing for those I cut away.

I filled all the orders that came that year, without any advertising, the proceeds of which amounted to a little over one hundred dollars, and from the queenening at home I made fifty dollars. By doing the uncapping during the extracting season I added about forty dollars more. In all I dedicated that season some two hundred dollars to my college course; and when, that August, I had the privilege of attending a National beekeepers' convention in Los Angeles, and seeing there many of the notables I had read so much of in the bee journals I felt that I was almost a full-fledged beekeeper.

I wore in the apiary that season a costume I had used at school when playing basket-ball. The blouse and short skirt were of blue demin, and the bloomers of a lighter-weight material. I added leggings, and, of course, long-sleeved gloves and veil. This costume was very satisfactory; but I doubt whether it would ever be worth while to make a special outfit, since there are always dresses on hand that need wearing out, which will answer the purpose very well.

To get back to the queen-rearing: The next two summer vacations were too short to allow me to undertake the work. But during the third year, on April 18, came the San Francisco fire. This brought my freshman year at college to a sudden end; and, although I stayed over at Berkeley a week by permission from the authorities to cross to the city and see the ruins I was home by May 1, and soon began work. I think I used about 75 nuclei that year, and I sent out advertising cards among California beekeepers. Owing, however, to the late start, and the absence of an order for queenening at home, I added only one hundred dollars to my fund. The vacation following I added seventeen dollars more by uncapping. Therefore three hundred and twenty-five dollars was about the amount of help the bees gave.

To those who may think of doing likewise, it may be of interest to know that that amount paid my incidental expenses



The McIntyre children, Flora McIntyre second in the row.

(books, stationery, dues to student organizations, etc.), including about one hundred dollars for traveling expenses between Berkeley and Ventura during the three years I was at college. It could have been done with less, as I included a good many tickets to concerts and good plays. I made it a point to see as many as possible of the great artists who appeared in San Francisco, Oakland, and the Greek theater on the campus at Berkeley, because I considered these a part of my education, and I was not sure that I would ever have such an opportunity to see them again.

My board and room I secured through assisting with the housework in a Berkeley family. My clothes I made at home, and my mother gave me about two hundred dollars, which, I have calculated, just about covered the expense due to illness and the seventy-five dollars I had left at the end of my third year.

I would not, however, advise any one to follow my example so far as to undertake extra work during the college year. That plan gives practically no time for recreation during fifteen hours or more of the twenty-four, and that means almost no time for "student activities." It is taking chances with one's health, besides. If I had it to do over again I would borrow the money to pay for my board and room, for I think



Flora McIntyre in her working-costume.

that a debt would be a lighter burden than ill health.

To make this tale complete I must state that, when I came home with one more year between me and graduation, I was compelled by illness to take to my bed, on which I remained two years, where, in fact, I have spent half of the five years that have just passed, and from which I now send this little sketch.

Ventura, Cal.

BEEKEEPING IN OREGON

BY H. F. WILSON
Entomologist Oregon Agricultural College

With such data as we have at hand, it would be impossible to estimate correctly the status of beekeeping in Oregon. Many farmers keep from one to several stands for home use, and in all parts of the State one may find from a few to many colonies that not only furnish honey for the home but also give a market surplus.

In looking over the data secured in a recent farm survey of this State, one might be led to believe that most of our honey is produced in southern Oregon; but in that it is misleading. The division known as

central Oregon probably has the greater number of large commercial apiaries, with the Columbia Basin second and southern Oregon third. These facts are not shown in the survey, for the reason that it was taken as a general farm survey, and it so happened that of the five or six commercial apiaries in southern Oregon the largest happened to be recorded. In the survey of central Oregon it so happened that out of a dozen or more commercial apiaries only two of medium size were recorded. With these exceptions, other data at hand show that the average arrived at is fairly representative of existing conditions.

The United States census for 1910 reports one farm in every five as having bees; but during the last two years the number of colonies has increased, both in the number of large apiaries and with the number on small farms. A considerable increase is due to the number secured by orchardists for pollination purposes.

With data on hand, and the figures from the United States census for 1910, a distribution map has been made which shows some very interesting data. Each figure represents 1000 colonies, showing an approximate total of 50,000 colonies with a value of \$250,000. The writer believes that,

for seed; and with the sweet clover which grows in waste places it gives an ideal pasturage for bees. There are many fine apiary locations in different sections of the State, but all of these should be thoroughly investigated before an attempt is made to start an apiary in any one of them.

Division of State into counties for general farm survey work:

COAST DIVISION.

Curry, Coos, Tillamook, Clatsop, Lincoln.

SOUTHERN OREGON.

Josephine, Jackson, Douglas.

COLUMBIA BASIN.

Hood River, Wasco, Sherman, Gilliam, Morrow, Umatilla.

CENTRAL OREGON.

Malheur, Harney, Crook, Klamath, Lake.

WILLAMETTE VALLEY.

Lane, Linn, Benton, Marion, Polk, Clackamas, Columbia, Multnomah, Yamhill, Washington.

BLUE MOUNTAINS.

Union, Grant, Baker, Wallowa, Wheeler.

EUROPEAN FOUL BROOD

Alexander Treatment Endorsed

BY C. F. BENDER

After seven years' silence I believe that I am entitled to say a few more words as to the treatment of European foul brood, especially as I have rid my bees of the disease completely, not having seen a cell of it for three years. I was among the very first to champion the Alexander treatment (see GLEANINGS, 1903, and later). Indeed, I used that plan before it was ever published, having discovered it accidentally, as Mr. Alexander probably did.

When the disease first appeared among my bees, in 1902, I began treating them by shaking on foundation, on the so-called starvation plan, according to the method then in vogue. The plan was faithfully followed for two seasons; but there were so many cases of recurrence that I had begun to despair. I think the weak point in this treatment was in leaving the old queen with the bees. If a young Italian queen were given at the time of shaking, I think it would always succeed. But if a young queen is given after keeping the bees queenless for a while it is not necessary to shake.

In shaking the sick colonies there was always a lot of brood left over; and the question with me was, what to do with it. It seemed wasteful to burn or bury the combs when so much of the brood was healthy. The way usually followed was to put a lot of this brood together, leaving it

for 21 days to hatch out. After hatching was completed the bees were shaken from the combs again, starved three days, then hived on foundation and given a young queen, if they had not raised one that suited me, which was not often, as the disease seemed to attack queen-cells worse than worker brood, and in the worst cases none of the royal cells would hatch.

Toward the end of the summer of 1903 I ran out of foundation and frames, and the combs looked so nice and clean after hatching out that I decided to keep the bees over winter on the combs and shake them in the spring. When spring came I watched these colonies carefully, expecting, of course, that they would be the first to show dead brood; for I had been taught that, to get rid of the disease, we must get rid of the germs. I was surprised to find dead brood in several colonies that had been starved and shaken by the orthodox plan; and equally surprised to find not a cell of it in those that had not been shaken.

I was very reluctant to adopt the dequeening plan for a regular treatment, because I could see no reason why it should cure; and it did fail sometimes. Theory said that the trouble was caused by germs that multiplied in the young larva, and finally killed it; that the disease was spread from cell to cell, and from hive to hive, by means of these germs. The rational treatment, according to that theory, was to destroy those germs. I tried antiseptics of several kinds, but they all failed to cure.

As I had read medicine a little, I borrowed some books and read up on epidemic diseases in general. I learned that, when a patient recovered from such a disease as diphtheria, for instance, he did *not* get rid of the germs first. They were often to be found in his system in large numbers, even for weeks after recovery; but for some reason they did no harm, and the doctors did not know why they were harmless. I learned so much about what the sages did *not* know about germs that I was ready to lay my theory aside for a while.

After that the only thing that troubled me about the dequeening treatment was the occasional failures. While I was still working on the problem Mr. Alexander's articles appeared in GLEANINGS, and the whole matter became clear. As I had complete records of all my colonies for several years back I was able to verify Mr. Alexander's statement that young queens were necessary to success; and if the disease was severe, that Italian blood was much the best.

For a while I practiced dequeening 21 days to allow the brood to hatch out, then shaking on foundation without starving.

That plan also was laid aside, as I became more and more convinced that the Alexander treatment was a complete success. I have no theory to cover the facts. I only know that it succeeds if followed strictly as Mr. Alexander has given it.

There are some cases that may be cured with a shorter period of queenlessness than he has recommended; but until one has had long experience it is not safe to have a laying queen in the hive in less than 21 days after the old one is removed. If the removed queens are introduced in other hives the disease usually follows them, even when the queens are young and vigorous. So it is usually best to destroy the queens when they are removed.

Dr. Miller has given us some modifications of the Alexander plan that I should like to try; but the disease had disappeared among my bees before his experiments were published. I am pretty sure, though, that his cases were much milder than mine. In my worst cases three-fourths of the brood would die in a very short time, and the combs were full of rotten larvæ with a strong sour smell. Such colonies always required a long period of queenlessness. Generally I kept them queenless 18 or 20 days, then gave a virgin or a ripe queen-cell.

Many will doubtless wonder as I did what will be the final outcome of the disease question—whether it will kill off all the bees, or make beekeeping unprofitable. Not at all. When it first appeared in this locality nearly every farmer had a few bees, mostly black. Where no treatment at all was given, most of the bees died; but two neighbors who merely Italianized their bees still have nearly as many colonies as ever. By using the treatment just given I have kept bees for a living through the worst of it, though I could have handled more colonies if they had all been healthy. One good result, among others, was the destruction of nearly all black bees, leaving the field to the Italians.

I have mentioned elsewhere the peculiar way in which the disease spreads. I had always supposed that it was spread mostly by robbing; but experience convinced me that the young bees at play were the most frequent cause of new cases by entering the wrong hive after a flight. My hives are arranged in pairs, two on a stand. When a case appeared, say, in the left-hand hive of a pair, at the front of the apiary, the left-hand hive of other pairs near the first would soon show dead brood. I have seen it several times follow one side of the apiary, entirely across, taking the left-hand hive on each stand, while those on the right hand remained free. I could see no explanation except that the young bees that had

been feeding sick larvæ had taken a flight, entered the wrong hive, and carried disease to a healthy colony.

Incidentally I learned something about how bees mark their location where there are many hives together. They seem never to mistake right and left, and never to enter a hive of another color than their own. The most common mistake is for them to enter the hive just behind their own, and on the same side of the stand.

In conclusion I must warn the novice, as Dr. Miller has done, that I have been talking about European foul brood. With the American form, so called, this treatment might prove a failure. If you are in doubt as to which you have, send samples to Washington and have them examined.

Newman, Ill.

THE QUEBEC CONVENTION

BY A. O. COMIRE, SEC.

The annual convention of the Quebec Apicultural Society was held in Montreal Nov. 12, at 10 A. M. About a hundred members were present, Dr. Emery Lalonde being in the chair.

The minutes of the previous meeting were read and approved, and the following officers nominated.

Dr. Emery Lalonde, Rigaud.

J. O. Levaie, Rigaud.

Jacques Verret, Charlesbourg.

J. A. Vaillancourt, Montreal.

Chrs. Ed. Martin, Louiseville.

J. A. Desforges, Pont-Chatteau.

Xavier Morin, Maskinonge.

F. W. Jones, Bedford.

Michel Dufault, St. Roch.

Ludger Rochefort, Beauceour.

Prudent Lapointe, St. Henri de Mascouche.

Ulderie Paradis, Cavignac.

A. L. Beaudin, St. Chrysostome.

Mr. Dufault proposed that the Hon. J. E. Caron, Minister of Agriculture, be named Honorary President of the society; Dr. Emery Lalonde President; A. L. Beaudin Vice-president; A. O. Comire Secretary-treasurer for the ensuing year.

The report of the Treasurer showed a balance on hand of \$326.

Mr. H. Nagant, representing the Minister of Agriculture, then gave a paper before the convention concerning statistics relative to the production of honey in Quebec. In his letter the Minister complains that our society has not furnished as complete statistics as those furnished by the societies in the counties of L'Islet and Quebec, and that, in consequence, he found himself under

the necessity of retrenching the appropriation now accorded us. The Secretary replied to Mr. Nagant, saying that it was easy for the societies mentioned to furnish complete statistics, for each county had to look out only for itself, while if the society asked for statistics for the whole Province it would be a work that would require the help of all the office employees for a whole season, which could not be compared with the work done by the societies mentioned. The secretary said the Department had not asked him for statistics for this year.

At the afternoon session it was resolved that the Minister of Agriculture be asked to continue the appropriation which he has kindly accorded us in past years, to the amount of \$300; also that he be asked to continue the appropriation made last year for the purchase of Italian queens, and to increase the amount to \$1000, and that the first service of queens be made immediately to the members of the apicultural society. It was also resolved to request the minister to be so kind as to amend the law so as to extend the powers of inspectors and to render their work more efficacious; also to insist on the use of hives with movable frames to take the place of the fixed type; also to forbid the importation into the Province of bees and supplies infected with disease, and to increase the penalty imposed on those who violate the law regulating the spraying of fruit-trees in bloom.

Mr. Morley Pettit, Provincial Inspector for Ontario, then gave a talk on the organization of beekeepers' societies, and the advantages to be derived therefrom. He gave also a talk on wintering bees. He was followed by Mr. L. M. Grignon, B. S. A., who spoke on bee culture in general, and on the establishing of an apicultural bee journal in this Province.

Mr. Ch. Peloquin, ex-president of the society, gave an interesting talk on rearing queens. His remarks were followed by some from Mr. Beaulne, assistant entomologist at the Ottawa Experiment Station, who spoke on the renewal of queens every two years.

A vote of thanks was extended to the speakers.

On the morning of Nov. 13 the convention was called to order. Mr. J. C. Magnan gave a very interesting account of beekeeping in the county of Portneuf, where he lives, and the means he has used to advance the industry. He was followed by Mr. M. Dufault, who explained his plan of wintering.

To close, Mr. J. F. Prud'homme gave a very interesting talk on the best time to put

bees in the cellar, and his plan of requeening each year.

A resolution was passed, inviting women to attend our conventions.

The following premiums were awarded:

WHITE COMB HONEY.

First prize, Dr. L. J. Comire, Yamaska West, \$2.50.

Second, Vincent Benoit, Ste. Scholastique, \$1.00.

DARK COMB HONEY.

First prize, \$2.50; second prize, \$1.00.

LIGHT EXTRACTED.

First prize, A. L. Beaudin, St. Chrysostome, \$2.00.

Second prize, Dr. L. J. Comire, Yamaska West, \$1.00.

DARK EXTRACTED.

First prize, A. L. Beaudin, St. Chrysostome, \$2.00.

Second prize, Vincent Benoit, Ste. Scholastique, \$1.00.

The convention adjourned to 2 P. M., and when called to order Mr. Harry Jones gave an exhibition of cages used for shipping bees by the pound without frames.

Mr. Beaulne gave an address on wintering bees outdoors as practiced at the Ottawa Experiment farm. He was followed by Mr. J. A. Vaillancourt, of Montreal, who gave an interesting talk on the sale of honey, and the best manner of packing it for shipping to market.

Mr. Arthur Comire, inspector, gave in his own name and those of his assistants a general report of the work of inspection they had done this season.

BEEKEEPING TO BE TAUGHT IN THE MINNESOTA UNIVERSITY

BY P. J. DOLL

The Minnesota Beekeepers' Association succeeded in passing a bill through the State Legislature last winter, which established a Division of Apiculture at the State University. Minnesota has now an appropriation from the Legislature of \$5000 a year for the development of the beekeeping industry; \$2000 of this is to enforce the foul-brood law; the rest, \$3000, is to establish and maintain a Division of Apiculture.

The duties of this Division are to give instruction to the students at the University, to experiment with bees on practical lines, and to aid and develop the bee industry in Minnesota and the Extension Department.

Minnesota is the only State in the Union that has a Division in beekeeping that is not connected with or under some other department. Even the bee department at Wash-

ington is under the Entomological Department. We believe that the bee industry is just as important in the development of our State as dairying, hog, or poultry raising.

Rev. Francis Jager, of St. Bonifacius, Minn., has been appointed by the board of regents of the University of Minnesota to be the chief of the Apicultural Division, and will be called the State Apiarist. Father Jager, as he is called, is a thorough and practical beekeeper. Although he devoted less than half of his time to bees, he has produced, the past season, about 20,000 lbs. of honey from about 110 colonies of bees, and is now wintering 225 colonies. He is a scientist, and a natural-born teacher and experimenter.

At the Minnesota State Fair he extracted, bottled, and labeled 12,000 lbs. of honey. This display created so much interest that the daily papers of Minneapolis and St. Paul had articles on it nearly every day for a week or more. The effect on the public was noticed by the dealers in honey, who sold more honey at better prices than ever before. The beekeepers of Minnesota are fortunate in having so capable a man in this office.

Father Jager announces that he will have a course in beekeeping at the University, commencing January 6, and lasting about thirty days. There will be another course, of ninety days, during April, May, and June. He intends to keep about 100 colonies of bees at the University next summer.

No doubt there will be great developments in the bee industry in Minnesota in the near future. Large yields of honey are reported from all parts of the State, ranging from 100 to 400 lbs. per colony. An entire crop failure has never been known, and there are vast territories of good bee locations with scarcely a bee on them.

CUTTING ALFALFA

Rules for One Locality may not Apply to Another

BY PAUL E. USSHER

In *Stray Straws*, Nov. 1, I read the short article on alfalfa. In that article the question is asked, "Has it been proven beyond doubt that there is any advantage in cutting alfalfa before it comes into bloom?" As a Westerner I feel qualified to write on the conditions existing in sunny California and Arizona. In the great Imperial Valley in California, and in the Nile-like valley of the Colorado in Arizona, we find conditions well nigh perfect for the growth of that greatest of all plants, alfalfa.

Alfalfa is the great western food for horses, cattle, and the ostrich. I mention the ostrich for the reason that there are thousands of these giant birds reared in Southern Arizona. It has been proven beyond doubt that hay for dairy purposes should be cut when the plant is about one-tenth in bloom, and for horses and mules the plant should be allowed to attain practically full bloom. The reason is a scientific one. Horses and mules require a strong, nourishing hay which is found in alfalfa which has been cut while in full bloom; while cows, especially dairy cows, require a hay that is rich in milk-forming qualities which is found in alfalfa cut while tender, and, as I said, when about in one-tenth bloom. The ostrich is permitted to graze, and eats with avidity the tender growths of the plant.

I hardly think that cutting before bloom would have a detrimental effect on the vitality of the plant or materially shorten its life. Alfalfa is known to live for a hundred years, and under adverse conditions at that. Of course, cutting before bloom would give probably one extra crop, but such crops are not so heavy as fully matured alfalfa would yield.

In the Imperial Valley and in the Yuma Valley of Arizona no commercial or barnyard fertilizer is used upon the fields, for the very good reason that nature has provided the best possible fertilizer. The Colorado River, which furnishes all the water used for irrigation purposes in these parts, carries in suspension a large percentage of the most valuable fertilizers. In this respect our soil conditions are very similar to those of the Nile.

Bees gather great stores of honey from the bloom of the alfalfa in these sections. It commences to blossom in April, and continues well up into October. Many fields are allowed to blossom for seed. Such fields yield abundantly for several weeks a fine nectar. I have never seen nicer honey than that furnished by alfalfa. The flavor and body are present, and in color it equals most grades of choice honey.

On the desert plains and valleys all shoots of this plant grow to an equal height, so that, in cutting, all shoots are severed a short distance from the ground. All seem to start at once after cutting, and no short shoots are injured in cutting, as appears to be the trouble in the alfalfa grown in the East or middle West. This year I saw the first crop being mowed the 20th of March, and the last will be cut about the first of December. Cuttings may be had every five weeks provided water is judiciously applied.

I would not attempt to advocate for the

East the principles we adhere to in this sun-kissed land. Here we have less than three inches of rain per annum, very few cloudy days, and practically no night dews. A long hot summer is our lot, followed by a delightful winter season, if it can be called winter. I sometimes long for snow and rain, and, to use a slang expression, "can you beat that?"

Yuma, Ariz.

CUTTING ALFALFA

June Grass and the Alfalfa Weevil; Advice from Experiment Stations

BY JOSEPH H. PETERSON

As I have almost grown up in an alfalfa-field I will try to give you a little light on the question. Dr. Miller says that in his locality the young shoots that are to make the second cutting will be spoiled if the first cutting is delayed until full bloom. That is not true here. The second growth does not start until the first is cut unless it is left standing too long and given an extra amount of water. The second crop will not start here, as a rule, until it has had an irrigation, although this is often given just previous to cutting the first crop.

Farmers in this locality usually let their alfalfa come well into bloom before cutting, or would do so if there were nothing to interfere. The second cutting, which begins blooming the latter part of July, is nearly all left to bloom out fully, but the first cutting of late years is nearly all done in bud or with very little bloom. This, however, is not because it is considered the best time to cut, but to get the June grass, with which the first cutting is infested, before it ripens. This June grass, if cut early, makes fairly good hay; but it matures earlier than alfalfa, and in the mature state it is not eaten by stock, and is even injurious to horses. On account of this, and also on account of our new acquisition, the alfalfa weevil, the first cutting of alfalfa is nearly all done early.

We get three cuttings here, and the third cutting often blooms profusely before it is cut, and some years the bees get considerable late picking from it. The second cutting is our honey crop, especially where it is left to seed, as considerable of it often is.

The Utah Experiment Station has made some very thorough experiments in the past on the proper time to cut alfalfa (it is commonly termed lucern in this locality), and I quote a few conclusions:

"The digestibility of lucern remains practically constant from budding time to the period of full bloom."

"We may hold this conclusion to be right—that, to insure a large yield of dry matter and the largest amount of albuminoids, lucern should be cut not earlier than the period of medium bloom, and not much later than the period of first full flower. This, in most cases, will be two or three weeks after the flower-buds begin to appear. It will be a more serious error to cut too early than to cut too late."

The above is from Bulletin No. 58, Utah Experiment Station, "The Chemical Life History of Lucern," Part II., by John A. Wedtsoe.

Ogden, Utah.

CUTTING ALFALFA

Continuous Cutting of Immature Plants is Devitalizing

BY E. E. STARKEY

Dr. Miller, in *Stray Straws*, page 749, Nov. 1, says, "Wait till it is all in bloom before your first cutting, and the young shoots from the bottom (which shoots make your second cutting) will have grown so high that they will be spoiled at first cutting, or else you must set your sickle-bar so high that you will not get all of the first crop."

I live near midway of the Yakima River Valley where thousands of acres of alfalfa is grown, and much of this has been growing as long as fifteen or more years continuously on the same ground, and I venture to say that not one ton of lime has ever been spread in this part of the country; and, in fact, but little or nothing is done to aid the growth except to surface cultivate in the spring time and irrigate. Three cuttings per year are the general practice; sometimes four and even five cuttings are taken by those who keep cows, and *think* it pays to cut it while quite tender. Even if the cow does like it better while young, that fact does not prove that land cut over in this manner produces as great profit as where the good well-matured cuttings are taken, and the three cuttings can be each allowed to bloom from one week to ten days or even more (at this stage it is not "all in bloom"). Alfalfa, when left uncut, is a continuous bloomer for the greater part of a long summer.

My own experience during the past five years is that the shoots from the crown come at various stages when the water is supplied at irregular intervals, and I have concluded that the best method of securing heavy and best paying crops is to allow it to bloom until the field looks quite blue, say from ten

to fifteen days from the first blooms, applying water at the beginning of bloom, and not again until after cutting; then young growth is just getting started by the time the field is cleared and water again applied.

I am persuaded that continuous cutting while immature is devitalizing to the plant, and that where continuous cropping is desired, renewed strength is furnished when the plants are allowed to come to full growth, but not to the production of seed, as seed development greatly reduces the strength of the plant.

I am confident that, as time proves what is best, we shall find pretty well-grown crops and but little tender-plant cutting.

Prosser, Wash.

CUTTING ALFALFA

The Time for Doing this Depends on the Stock to which it is Fed

BY V. R. NICODEMUS

To my mind, alfalfa is the most alluring plant now under cultivation. Its high feeding value, both in digestible nutrients and in palatability, makes it a prize worth the best efforts of every good farmer. Fortunate indeed is that eastern farmer who has secured a good stand of plants on several acres. More fortunate still is he if he succeeds in cutting his crops at the proper time and getting them cured properly.

One important factor in determining the proper time for cutting is the animal to which one expects to feed it. For cows or horses, alfalfa may be left standing until in full bloom—better only three-fourths bloom—before cutting, and good results be obtained. But for hogs it is highly important that it be cut early. By so doing we lose a little, perhaps, in yield, and in the total digestible nutrients, but we gain immensely in palatability. If alfalfa is left standing too long its stem becomes woody and unpalatable. I remember that the spring of 1912 here was very wet, so that we were unable to cut the first crop of alfalfa until it had all bloomed full and broken down. When feeding this to our cows we found considerable waste.

Then there is another consideration. Early-cut alfalfa does not drop its leaves as readily as late cuttings. When one considers that about three-fourths of the digestible nutrients are in the leaves of the alfalfa plant, we readily see the advantage of early cutting.

Henrietta, Pa.

SOME COMMENTS ON RECENT STATEMENTS

Is the Wall of the Hive Porous?

BY R. F. HOLTERMANN

On page 822, Nov. 15, the question whether hive walls are porous is brought forward by Mr. A. S. Tarson. Let me say that I do not want an unpainted hive or super; but water or moisture does go through the sides of the hives. I *know* this because I have seen it after it came through. Now, do not be in too great a hurry to say that I am mistaken, or that I can not prove that statement, for I can.

I have wintered bees in cellars in years gone by; and when taking them out in the spring I saw on the sides of the hive patches of paint having the appearance of a blister. Upon breaking through this paint I found water underneath. Where did the water come from? It could not have come from the outside, or the paint could not have confined the water under it. It *must* have come from the inside of the hive, driven, in the form of vapor, by the heat of the bees into the wood where it condensed under the paint. The late S. T. Pettit had the same experience. I have seen cases of this kind when the bees were in his bee-cellar, and I have heard him speak of it.

It is not at all necessary that moisture leave the hive in such a way. If proper provision is made, there are better ways to take care of the excess of moisture.

This much I am prepared to admit: The more the bees propolize the inside of the hive, the less tendency for moisture to go through the side of the hive.

THE SMOKE METHOD OF INTRODUCING QUEENS

The discussions along the above line have interested me; but when a man like Mr. J. E. Marchant makes the statement, "You can run a queen into a colony that already has a queen by smoke, and the bees will kill the old queen and accept the newly smoked-in queen," I just wonder if he should not say, "may accept the newly smoked-in queen." If he is correct, the plan will be of great value to us.

Over thirty years ago a student of the late Henry Alley taught me how to introduce virgin and other queens by means of tobacco smoke. Up to the present time I know of no better way of introducing queens providing the colony has no surplus honey in the hive, and if it is not during robbing time.

In the first case it is a difficult matter to get all the bees under the influence of the tobacco smoke, and the smoke taints the honey. In the latter case I have found by experience that something, probably the

tobacco smell, seems to draw the bees to a colony which has been dealt with in the way necessary to introduce the queen, and the colony naturally falls an easy prey to robbers. This may not be the case with ordinary smoke; but even if it is, it would not be a serious obstacle if a new queen could be made to replace the old in this way.

THOSE LARGE SMOKERS.

Dr. C. C. Miller, in his kindly way, rather takes me to task for wanting a large smoker. "I'd rather waste time to load up two or three more times in a day than to waste a good deal more in way of strength by lugging around too heavy a smoker." It is bad to waste any thing. For instance, many people eat more than they require. That is waste of food; and right here let me offer a suggestion in connection with the problem of how to reduce the cost of living. It can safely be whispered to 95 out of 100 people that they should eat about half what they do, and this will cut their food bill in two, and this largely reduced demand will likely materially reduce the cost, perhaps cutting it another 50 per cent. Doctors' bills, too, will be smaller. The doctor who tells a patient that he overeats loses his practice; hence, to work it off one must take exercise. How shall we exercise? It would not do to work if we can help it; that is an economy adapted to poor people, so we (or, rather, they) take long walks; or if that is too much trouble they attach themselves to a club with a gymnasium.

Why not let this energy be expended in carrying about a smoker that weighs six or eight ounces, or even a pound, more? Dr. Miller, we judge by contrast. I have seen enough of all phases of life, and you have too, to know that this is correct. If I spend my time in a nice office, comfortably heated, I do not appreciate very highly a heated home. But send me out during a November day with a team and lumber wagon, and a load, and let there be a cold rain, and I will gladly, when the day's work is done, find refuge in a log shanty with a fire in a smoky stove and a candle sticking in an empty bottle. So, doctor, when you have an eight-frame hive you rejoice when the honey crop is light, and muscle and exertion are not wasted in lifting a larger crop. Or if the bees will swarm and put the rest of the honey crop into another hive, that pleases you. You would say, "Well, well! This saves muscular exertion: I'd rather load up two or three more times," etc. One soon becomes accustomed to the heavier smoker, and, within reasonable bounds, thinks no more of operating a smoker weighing 2 lbs. or even 2½ lbs. than one weighing half a pound less.

Time counts during the busy season of the year. After handling twelve-frame hives, an eight-frame seems like a toy; but it is a source of pleasure to get a heavy crop, even if we have to lift it and handle, and it is a source of satisfaction to have an implement to smoke the bees with when a gain is made in the day's work. Now, I would suggest that those who would like a larger smoker than the one now on the market "shower" GLEANINGS with post cards. I feel sure that many beekeepers do want larger smokers; and even if they do not it would not change my view.

Brantford, Canada.

BEES ENTERING COMB-HONEY SUPERS

No Trouble During a Honey-flow

BY FRANK M'MURRAY

Mr. J. E. Hand, Nov. 15, page 805, has an interesting article on section-honey production, which is based upon the assumption that bees have a natural dislike for work in section-honey supers.

Acting upon the generally accepted theory that bees dislike a section-honey super on account of its subdivided and crowded condition, I have experimented in various ways to overcome this supposed dislike. I have tried four-beeway sections in connection with various forms and sizes of perforations in separators, only to find that in many cases my work was undone by the bees closing the openings with wax or propolis, many of which were much more than beeway size.

My latest experiment was with slatted separators, and the openings in these I found entirely filled with wax and propolis in most supers.

These experiences, taken in connection with the well-known fact that bees do not hesitate to fill the small space between top-bars and cover with comb and honey, if no other room is provided, have forced the conviction upon me that the dislike of bees for a section super (if any) must be accounted for in some other way than its crowded and subdivided condition.

I am a section-honey producer, and I can charge none of my failures to dislike of the bees for work in section supers; but they are all chargeable, first, to a shortage of nectar; second, to excessive swarming.

When nectar is plentiful, I find that ninety per cent or more of colonies enter the section supers gladly; and the remaining ten per cent or less I either requeen or "bait" with an unfinished super. I use half-sheets of foundation at the top of

sections, and the short Dr. Miller starter at the bottom, with from one to four "bait" sections in the first supers put on in the spring.

The first consideration in honey production is nectar. Let beekeepers look well to their local honey environment. Let them cause two honey-producing flowers to bloom where there was only one before, by seeding waste lands with honey-producing plants. Let them co-operate to see that no bee-range is overcrowded, and all other difficulties will become small—very small.

I do not doubt the practical success of Mr. Hand's proposed method; but I do believe it involves loss of time and energy, both for the bees and their keeper.

Aurora, Mo.

THE FOOD VALUE OF SUGAR AND HONEY COMPARED

BY E. P. ROBINSON

On pages 629 and 633, Sept. 15, are comparisons of honey with sugar, beefsteak, fruits, and vegetables, all favoring honey. It is an old saying that "comparisons are odious," and surely in these cases they could be fairer. It reminds me of the claims of the rice-growers' association as to their product—a poorly balanced one.

There is little doubt the American people eat far too much sugar—probably about five dollars' worth a year per capita. If four dollars of this were expended for honey the health of the people would be better, not wholly because of honey being more wholesome, but because so much less sweetening could be bought with the money, the honey costing about three times as much per pound as sugar.

The only just way of comparing food materials is by their analyses. The following figures are interesting as showing the

nutritive values of some of the least as well as most nutritive food stuffs:

The food value is obtained by multiplying percentage of protein and carbohydrates by 1860, and fat percentage by 4220. The average American diet has been determined by our nutrition experts as about 17 per cent protein, 25 per cent fat, and 58 per cent carbohydrates. More protein is needed by the growing child and man at hard labor; while less is needed by the aged or idle.

The figures show honey as one of the luxuries, along with cheese and butter, rather than as a staple everyday food of the masses like potatoes, bread, crackers, sugar, and rolled oats. Maple sugar and syrup are in the same class with honey, analyses similar, and costs not far apart.

That any of our fruits or vegetables average 95 per cent water, as stated by the *Farm Journal*, I can not believe—even watermelon being only 92.4 per cent.

Mr. Terry's statement that honey is more wholesome for sweetening oatmeal than sugar is true; but what oats need is more fat, not more carbohydrates, the principal element of both sugar and honey. Either of these added to oats further unbalances it as a ration, while cream or butter balances.

Packer, Ct.

[The consumption of sugar per capita is much greater in this country than in Europe, for instance—probably because we make so much of it—and a great reaction is bound to come. Already public sentiment is deploring the abnormal use of sugar. Sugar is more convenient as a means for sweetening than honey—at least most people consider it so, and then it is somewhat cheaper.

Beekeepers and honey salesmen should take the greatest pains to point out that honey is *not* a cane sugar, like maple syrup, etc. It is a fact that a great many doctors do not know this.—Ed.]

	Cost	Water per cent	Protein per cent	Fat per cent	Carbohydrate per cent	Ash per cent	Value	Value per cent
Oysters	.18	88.3	6.0	1.3	3.3	1.1	230	13
Eggs	.18	65.5	11.9	9.3	0.0	0.9	635	35
Beef, lean	.20	62.5	19.2	9.2	0.0	1.0	745	37
Milk	.04	87.0	3.3	4.0	5.0	0.7	325	81
Cheese	.20	34.2	25.9	33.7	2.4	3.8	1950	97
Honey	.15	18.2	0.4	0.0	81.2	0.2	1518	101
Butter	.34	11.0	1.0	85.0	0.0	3.0	3605	106
Butterine	.17	9.5	1.2	83.0	0.0	6.3	3525	207
Raisins	.07	14.6	2.6	3.3	76.1	3.4	1605	229
Potatoes	.01½	78.3	2.0	1.0	16.5	0.9	345	230
Bread	.05	35.6	9.3	1.2	52.7	1.2	1205	241
Crackers	.07	5.9	9.8	9.1	73.1	2.1	1925	275
Lard	.12	0.0	0.0	100.0	0.0	0.0	4220	352
Sugar, granulated	.05	0.0	0.0	0.0	100.0	0.0	1860	372
Rolled oats	.03	7.7	16.7	7.3	66.2	2.1	1850	617

Heads of Grain from Different Fields

Insectology

Of work the bee is not afraid,
And hard times can't expel it;
For when it gets its honey made
It knows just where to cell it.
—*Cincinnati Enquirer.*

Then take the case of Mister Fly,
Pursued with noise and clatter;
When he observes one's hand on high,
He knows just swat's the matter.
—*Denver Republican.*

Consider, too, the little gnat;
He's fortunate in that he,
Whate'er the styles are—thin or fat—
Can manage to look gnatty.
—*Chicago Inter-Ocean.*

And also there's the tiny flea,
So thrifty and well fed;
You grab him where he seems to be,
And find the flea has fled.
—*Peoria Journal.*

And there's the little redbug, he
Is always well and hearty;
He has no stinger like the bee,
But he's ten times as smarmy.
—*Houston Post.*

Is it Practicable to Ship Bees in a Refrigerator Car?

I write to ask what data you can give about shipping bees in a refrigerator car with ice. I have been shipping for years, but do not find shipments made in cattle-cars to be altogether successful. How did you make your shipments last year from Florida? The question in my mind is, whether ice will keep down the temperature sufficiently when the circulation of air must of necessity be poor. That the darkness of the freezer would tend to keep bees quiet so that they will not generate so much heat, I can readily see. But that the ice can absorb the rest of the heat fast enough I can't see so plainly.

Your scheme of shipping to Florida is all right. I am going to do the same thing, except that my chosen land is southern California. If there is sufficient rain to start early pollen I expect to get quite a crop of orange honey. Crop or no crop, I am sure of making 100 per cent increase, and most likely more.

There is some difficulty in getting queens mated on account of high fogs in California; but ordinarily one can make three nuclei out of each hive. I aim to have three or four frames of brood and plenty of bees in a ten-frame hive containing seven combs in all, the other space left for clustering-room. Then comes the question of shipping.

Now, if those nuclei could be brought through intact by May 20 they would do finely; but so many bees die in each one, and so much brood is lost, that it requires a month's time for them to build up. Please understand they are given water too, either *en route* or before starting. But the light in a cattle-car keeps them so excited that they soon evaporate all the water given in their combs, and eat brood besides.

Now, I want to try a freezer to avoid the loss of larvæ and old bees. If icing will actually do it, the knowledge will save many a dollar to several of us Western shippers.

Hansen, Idaho, Nov. 17. G. C. MATTHEWS.

[We question very much the wisdom of using a refrigerator car to keep down the temperature of the bees. We have had no difficulty in several carload shipments of bees, and we have never used any ice to

cool them down. The important thing is, plenty of water along the route. A man must go with the bees, of course, and he must water them whenever they get to roaring. A little practical experience, however, will determine when the bees need water; but it must be given much more often during hot weather than one would ordinarily suppose—sometimes every hour or so.

It is not quite clear to us from what you say whether you supply the bees with water at the start in the combs themselves, or whether you send a man along to give them water every now and then. We should infer, however, from the fact that you lose so much brood that the bees have only water at the start, and that in the combs. This is not sufficient, because bees will use up an immense quantity of water.

Two years ago this coming spring a carload of bees from Florida *en route* about eight days would take up a barrel and a half to two barrels of water. We have found in both cases, where we have supplied water plentifully, that not a particle of the brood was destroyed; that even queen-cells hatched out, and apparently queen-rearing would go on just about the same as it would ordinarily. Even uncapped queen-cells were capped over and hatched out *en route*.

You are referred to our article in this issue on shipping bees in car lots. We use during the colder weather, when we are shipping bees from the North to the South, a fruit-car. This has doors at each end, and, of course, doors at the side as usual. During the hot weather we use cattle-cars. The main thing is to keep the bees supplied with water and the car moving. When a car stands on a siding, and the sun shines on the side of it, the bees get very noisy. It is then necessary to put up a canvas on the side next to the sun, and at the same time the bees must be very liberally watered. A good wetting down very frequently keeps them quiet; but it is very important to get in touch with all the railroad officials along the line, to the end that the car may be moved promptly, and on fast freight trains, so that there may be no delay between one freight train and the other. As far as possible, secure a through freight. There is not a particle of need of losing any brood, and that, too, without the use of ice.—ED.]

Making Increase in September

The first of September I had five colonies of bees that were crowded in the brood-chamber until they were clustered on the outside of the hives. The honey-flow in this section was over, so I decided to try a new experiment. I opened each of these five hives; and when I had found the frame that the queen was on I placed this frame, queen, bees, and brood in a new hive with full sheets of foundation, and then I moved the old hive to a new place and put the new hive with one frame of bees and brood, and the old queen where the old hive had been. The old workers, of course, all went into the new hive where the queen was. These new colonies I fed freely on sugar syrup, and by the last of September they were well filled up with winter stores, had a fair supply of brood, and at this date, Nov. 12, there is still unhatched brood in them.

The five old hives that I made these five new ones from were queenless the fourth day after removing where the queen was. These new colonies I fed freely cells, and gave them eggs from my choice queens. Each of them raised nice queens; but one of the young queens was lost in her mating-flight. I then united this colony that was queenless with the one that I had taken from it. They united without any quarreling whatever; and by this uniting I had some

extra frames to help finish up some weak colonies with winter stores.

The first of November, when examining my bees and putting them in winter cases on opening the hive where the most prolific queen I had was (she being one year old, and the only hybrid in my yard) I found the bees had begun to ball the queen. I blew some smoke on them, and scattered all, but two bees refused to let her loose; and before I could get them away from her one of the bees had stung her. I then put the cover on the hive and placed the queen on the light board in front of the hive. Just as soon as I put her down the bees attacked her with increased fury; but by the use of the smoker I helped her to get into the hive. Then in about thirty minutes I opened the hive and found the queen well balled on the bottom of the hive, and almost dead. I then finished killing her and left them queenless until the next day; then I united them with another colony, which was done with but little smoke and no fighting.

In both cases of uniting above referred to I put the bees in a different hive from which either colony this larger space!

Dott, W. Va., Nov. 12.

H. INGRAM COOK.

[As a rule it does not pay to attempt to make increase in your locality as late as Sept. 1. Much depends upon the weather and on the honey-flow; but usually it is safer to let the colonies remain strong. One rousing good colony stands a better chance of wintering safely than two colonies only medium in strength. Furthermore, unless a special effort has been made to keep plenty of vigorous drones in one or more colonies the young queens are likely to remain unmated.—Ed.]

Making Honey Vinegar

I have decided to make vinegar out of the sour honey. I looked up the recipe in the A B C of Bee Culture, but there are a few things that I don't quite understand in regard to it.

1. About how long does it usually take to make good vinegar?

2. Could it be made now and left in the cellar this winter, or would it be better to wait until next summer and make it outside when it is warm?

3. If made now, would it be harmful to bees that are being wintered in the same cellar with it, and would it affect sealed jars of fruit?

4. Will good syrup-barrels be good enough to put it in? Should the whole head of the barrel be taken out, or will it do just as well to leave the bung open and cover with fine wire cloth or cheese-cloth?

Hopkinton, Iowa, Oct. 27. A. R. SHEARER.

[The above was referred to Mr. E. M. Nichols, of Lyonsville, Mass., who replies as follows:]

It will take from two to four years to make good honey vinegar if one fills a barrel or cask with honey properly reduced with water, and allows it to go through the natural change to acetic acid, or vinegar.

If you have a quantity of honey you wish to make into vinegar, a better way for you to do is to place a cask, capacity 45 to 50 gallons, in a warm room, temperature 40 to 50 degrees Fahrenheit; lay the cask on its side with the bung hole up and covered with cheese-cloth. If the barrel stands on one end with one head out, there would be a larger percentage of loss by evaporation. The cask should be filled about half full of good vinegar, then add ten quarts of fermented liquid once in about seven days. When the cask is full, draw out about half of the contents and continue the process. In preparing the sweet liquid I prefer rain water to put with the honey, and have the liquid about as sweet as for a sweet drink; or one can determine this by either method mentioned on page 592 in the A B C and X Y Z of Bee Culture. When this liquid is first prepared it contains a per cent of sugar; when it is allowed to

ferment, it then contains alcohol, and the alcohol is converted to acetic acid by the cask process. This same method of making vinegar can be used on a smaller scale if one wishes.

There will be no harm in storing honey vinegar in the same cellar with bees or sealed cans of fruit.

Color of Drones from Mismatched Bees

On page 548 Mr. Albert Swanton asks if queens mated by black or German drones don't produce black bees and drones. Your answer is that a queen mated with a black drone will give both bees and drones, mixed blood. Now, I suppose you and Mr. Swanton mean a pure Italian queen will. I have always understood that the mating has nothing to do with the drone offspring; that is, if the queens were pure Italians. All her drone brood would be pure Italian, no matter what kind of drone she was mated with. If I am not correct, put me straight.

DEEP SPACE UNDER FRAMES UNDESIRABLE.

Again, page 517, your correspondent advises a space of one inch or more between the floor and bottom-bar. My experience has been that, if over $\frac{1}{2}$ inch is allowed, bees will build combs, and give a lot of trouble. Again, what is to be gained by giving this larger space.

Hempstead, Tex., Aug. 12.

G. T. RAWLS.

[Our answer, page 548, was, perhaps, not complete. The orthodox teaching is that the drones from a pure Italian queen, even if she be mated to a black or hybrid drone, will be pure also. A few, however, take exception to the statement; but unless we can get better proof to the contrary we shall have to accept it as true.

This question of a deep bee-space under the frames hinges somewhat on the locality and the strength of the honey-flow. We use an inch space under our frames—that is, between the bottoms of the bottom-bars and the floor of the bottom-board; and it is rare indeed that bees build comb in the space, and we have had some pretty strong honey-flows also. The great advantage of this extra space is the providing of better ventilation; and better ventilation means less swarming. Of course, one can have a deeper entrance with a $\frac{3}{8}$ space under the frames; but the ventilation will not be nearly as good by considerable. The tendency of the beekeeping world now is toward a larger space between the bottom-bars and bottom-board, and larger entrances, and mainly because of the reduction in the swarming; and while it does not stop it, it discourages it.—Ed.]

Raising Queens in Upper Stories

I have been reading again some of last year's copies of GLEANINGS, and came across an article by G. J. Yoder on making up winter losses, May 1, 1912, page 281. Could you shed a little further light on the subject? I have raised a few queens in this way, but have to remove them just before they hatch, otherwise they simply disappear. On only one occasion was I really successful in getting a queen mated from an upper story, and in this case an excluder was placed on the first story, and a wire screen on the second. The queen mated from the third story, and is now doing well. It seems that an excluder on the first story is not sufficient, even when the queen is raised in the third. Does this raising of queens in supers lead to swarming, especially if done in the swarming season?

FRED E. WHITE.

North Vancouver, B. C., Sept. 19.

[One can raise cells in the upper story of a strong colony very easily; but there are some important requirements, even to do this. The upper story must be separated from the lower one by means of an excluder. There must be a light honey-flow, or a feeder on the hives, for the bees must be kept in a high state of prosperity. Moreover, bees will not

start cells, as a rule, in these upper stories; but they will finish and cap over those that have been already started.

Queens can be mated from an upper story with perforated zinc between the two parts of the hive; but ninety-nine times out of a hundred the plan will fail. The only way to make it work at all is to use a wire screen between the upper and lower stories, and then use a separate entrance to the upper story, preferably in the rear.

Yes, rearing cells in the upper story has a tendency to incite swarming. The presence of a large number of cells ready to hatch within a few days will start up a swarm as nothing else will do except an overcrowded condition of the hive and lack of ventilation.—Ed.]

Do Bees Steal Eggs?

This question has been discussed pro and con for years; but it is not my intention here to undertake to settle it nor even to express an opinion. My whole object in writing this is merely to record an interesting case that came to my attention.

On May 15, 1913, in company with Thos. Parker, of Bedford, Iowa, I drove to the home of J. H. Fitch, who has a fine apiary in Danzenbaker hives near Bedford. Among the hives examined was one containing a drone-layer. The hive was full of drone brood and drones, with but comparatively few workers. Not a trace of worker brood could be found within the hive. On one of the frames Mr. Parker found a sealed queen-cell, and on the opposite side a partially built queen-cell. We were very much interested to know whether this cell contained a drone larva, such as often happens in such colonies. We decided that in case the cell really contained a female larva there was no way to account for it unless the bees had secured a fertile egg from some other colony.

On June 26, a little more than a month later, Mr. Fitch wrote me that the cell had, in fact, contained a queen, and that there was at that time sealed brood in three frames. He said that the queen was a very fine-looking one, and the colony gave promise of prosperity.

This is the most striking instance of this kind that ever came to my attention, for the old queen was very plainly a drone-layer. I have heard of similar cases, but this is the most puzzling one coming under my own observation.

Atlantic, Iowa.

FRANK C. PELLETT.

Does the Caging of a Queen in Her Own Hive Cause the Building of Queen-cells?

If an old or laying queen be caged and placed in her own hive, will the bees build queen-cells the same as though she (the queen) were taken out altogether? And may that queen be liberated again in her hive at any time? or must one of the plans for introducing be followed out? Must all queen-cells be removed before she is liberated or introduced?

If the queen be caged, and placed in another hive, will she be fed by those bees the same as she would be were she caged and placed in her own hive?

Berne, Ind., Nov. 20. MOODY BRENNEMAN.

[One can cage a queen in her own hive, and the bees will feed her, and at the same time build cells; but a strange queen caged over another colony that already has a queen, probably will not be fed. A dozen or so queens may be caged over a colony that is queenless, and the bees will feed some and not others; that is to say, they will select out one or more queens which they seem to accept, and to smear the wire cloth of the other queens over with bee-glue, thus smothering them to death.

A queen may be kept caged in her own hive if kept queenless for a month or more; but it might be advisable in any case to have a little candy. In the

case of a strange colony it is very important to have candy, especially if that strange colony already has a queen at large in the hive. If there is, therefore, but the one queen in the hive, and she has been caged for some time, she may be liberated any time providing no virgin has hatched from one of the cells. If there are capped cells, as a matter of precaution they should be cut out before the queen is released, or the bees might kill the queen, knowing that young virgins would soon be due. Bees will very often seem to prefer a prospective virgin to a laying queen.—Ed.]

Parcel Post in Germany

In Germany the charge for a package up to 11.1 lbs. is the same, be it one pound or eleven. The minimum charge to a distance not over 10 miles is 6 cts.; for any greater distance anywhere within the empire the charge is 12 cts.

The post accepts parcels up to 111 lbs. For each kilogram over five kilograms the following charge is made:

Within the first zone, not over 10 miles, for each additional kilogram, 1 1/4 cts.

Within the second zone, not over 20 miles, for each additional kilogram, 2 1/2 cts.

Within the third zone, not over 50 miles, for each additional kilogram, 5 cts.

Within the fourth zone, not over 100 miles, for each additional kilogram, 7 1/2 cts.

Within the fifth zone, not over 150 miles, for each additional kilogram, 10 cts.

Within the sixth zone, over 150 miles to anywhere within the empire, for each additional kilogram, 12 1/2 cts.

Packages of very large dimensions, baskets with plants, cages with animals, etc., there is an addition of 50 per cent to the regular charge. Five kilograms is called a *post parcel*. This term is commonly used in advertising honey. The price for the post parcel containing 4 1/2 kilograms honey includes the carriage and C. O. D. charge usually. The C. O. D. arrangement is a great convenience. The postoffice makes for the C. O. D. an extra charge of only 2 1/2 cts. over the amount the money order would cost. The party receiving the package pays the cash, but has no address to write, while the sender knows he will get the amount of his bill without delay. Goods and honey are usually sent C. O. D.

The package for honey used is a tin pail with a cover that fits water-tight. As a rule the honey sent by parcel post is crystallized. Although the pail will hold the liquid honey, yet the hauling is not gentle. For a greater distance the only safe way is to wait until the honey has crystallized. The pails are filled with liquid honey, and set aside for crystallization. No wrapping is necessary.

J. A. HEBERLE, B. S.

Markt Oberdorf, Bavaria, Germany, Nov. 8.

Not One Failure when Introducing by the Smoke Plan

I have just read the Nov. 15th issue, and say amen to J. E. Marchant's article, page 804. I really believe this smoke plan to be the best thing ever given to beekeepers for the introduction of laying queens and virgins. When friend Miller's article first appeared in GLEANINGS it made me "sit up and take notice," and the next day I introduced a laying queen to a strong colony after first removing the queen they had; and bad weather came on so that I was unable to look into the hive for a few days; and when I did I found the queen all right, and she was laying in good shape. The plan pleased me so much I wanted to go further, and so I introduced a queen to a colony which I found queenless and having queen-cells well under way. This was also a success. I then tried virgins, giving them to two and three frame nuclei.

I want to say right here I think any one is apt to fall down unless he is careful in the way the queen is run in. Referring to the danger mentioned in an editorial in the September 1st issue, when introducing to small nuclei, of having the queen run away into some corner or away from the combs, I will say that I always remove the entrance blocks at the side near the combs and let the queen run in at the corner, then replace the block, and upon examination I have never failed to find the queen upon the combs and at home. I have never had one balled yet.

I have not had a chance to try this method on laying workers, but will in the near future if the opportunity presents itself. Some of our old beekeepers are shy about trying this method, and seem afraid of losing queens by it; but we have got to try things out if we ever expect to get anywhere in this world. I have introduced queens for other beekeepers by this method with the best of success, and I am firmly convinced that it is the quickest and best method given yet, and also the safest if properly done. It certainly means a big saving of time and money to all who try it, queen-breeders especially.

Berlin, Ct., Nov. 21.

A. E. CRANDALL.

Queens Introduced by the Smoke Method are Laying the next Day

Regarding the smoke method of introducing queens, I will just state that I have been using that method for the last twelve years, with the result that I have generally succeeded in introducing successfully about 100 per cent of my queens. About ten years ago I wrote an article for the *Western Bee Journal* detailing said method of introducing, at which time I did not know who was using that method. Previous to this I had always observed the directions for introducing, and, as a result, I lost about one-fourth of my queens.

One thing I wish to say about the smoke method is, it must be used with caution. An overdose is cruel, and, if given during a honey-dearth, you will find plenty to do protecting the hive from robbers.

Another advantage which is important is, the queens are laying the next day.

Bakersfield, Cal., Nov. 8.

F. D. LOWE.

Sending Honey by Freight C. O. D.; Plain Simple Business Directions to Those who are Shipping to Strangers

I sell most of my honey by correspondence, or, in other words, I do a mail-order business. When shipping to strangers I ship to shipper's order, bill of lading attached. I have had one or two shipments refused because the railroad agent refused to let parties inspect honey before signing a draft. Others (from letters received) think it shows disrespect to them to ship in that way. How do you manage this? I can't afford to ship to strangers with straight bill of lading, as I have had trouble collecting that way.

Llano, Tex., Oct. 2.

L. B. SMITH.

[In sending freight of any kind, draft attached to bill of lading, if you desire the consignee to inspect the bill of goods you must make that proviso in the bill of lading, otherwise the railroad agent has the right to refuse the consignee such privilege.]

In sending stuff C. O. D., either by express or freight, one has to run the risk of offending a possible future customer who will pay cash. If his bank standing or credit is good he is more apt to take such offense. It is usually advisable to go to your bank and ask if it knows the financial standing of the parties to whom you propose shipping your goods. If they can find no rating in Dun or Bradstreet whatever, or if the rating is unsatisfactory, you will be compelled, if you ship at all, to send goods draft attached to bill of lading.

In all transactions of this kind it is usually best to ask the prospective customer, in the first place, if unknown to you, to furnish references. This is an ordinary plain business requirement; and if business men, and in particular beekeepers, would take this precaution they would avoid a lot of bad debts and, very often, bad feelings of a sort that means no future business. Any man who is offended because you require references should be avoided, for no responsible person objects to it; and it is not always wise to presuppose that parties referred to would give the proposed consignee a satisfactory rating; so it is best to write one or more of the references. It may consume a week's time, but it may save the price of a crop of honey.—Ed.]

Melting up Extracting-combs Taken from Foul-broody Bees

I wish to know whether it is advisable to melt up all extracting-combs taken from foul-broody bees. What percentage of a yard of forty colonies (nearly all having it, but most of them fairly strong in bees) would come through the winter?

SUBSCRIBER.

[We certainly would melt up all combs affected with American foul brood. Combs from a European foul-broody colony may be used again; but we would advise melting them up also to be on the safe side.]

Foul brood, either European or American, will not affect the wintering of a colony of bees unless it reduces its strength in the fall. Many hives affected with either disease will have only a few cells of dead matter. Such colonies will winter as well as the average normal one, other things being equal. But if a stock has foul brood very badly, so that its strength is reduced, it will die, probably, during the winter and the following spring; for as soon as the bees can fly, other bees will rob out these diseased combs, thus spreading the infection far and wide. This is precisely the manner in which American foul brood is spread in many cases.—Ed.]

Making Increase by the Alexander Plan

I have a few colonies in ten-frame shallow hives, two of which make up one brood-nest. I should like to know the best way to manipulate these hives for increase, following the Alexander plan, or any other more suitable to meet existing conditions. I have plenty of shallow frames with full combs or foundation. I am prepared to buy queens if advisable. The honey flora is plentiful, consisting of dandelion, fruit bloom, clover, smartweed, melilotus, and fall flowers.

SUBSCRIBER.

[We would advise you to follow the Alexander plan, which plan we have given several times in these columns. You will also find it given under the head of "Increase" in our A B C and X Y Z of Bee Culture. Your increase will be much more rapid if you buy queens, of course; but it is more economical to raise one's own queens. However, in some localities there are so many black bees that pure stock can not be raised, and for that reason, if for no other, it is better to buy queens and thus have pure stock.—Ed.]

Information Wanted Concerning One of Mr. Langstroth's Relatives

Have you any information as to where Miss Saddle Langstroth can be found? She is the daughter of J. T. Langstroth, and granddaughter of Rev. L. L. Langstroth. Her cousins have tried to find her for several years, without success. She probably is married, and under another name.

Holyoke, Mass.

HERBERT F. DAVIS.

[If any of our subscribers or readers can furnish Mr. Davis the desired information we hope they will do so.—Ed.]

Our Homes

A. I. Root

Go ye into all the world, and preach the gospel to every creature.—MARK 16:15.

"DARKEST AMERICA;" HOW TO GROW IDIOTS AND IMBECILES.

I have recently been talking to you about "starving America;" but now we have something that confronts us that might well be called "darkest America." In this day of great progress and wonderful enterprise we have not only whole farms but whole regions devoted to growing separate things. A great part of Michigan is devoted to growing white beans; and in riding through these big bean-farms one might almost think Michigan could supply the world with this great staple. Then we have great egg-farms; cranberry-farms; and just recently I spoke to you about fox-farms for growing furs for fashionable women. But I believe none of you ever heard of not only a farm—and may God forgive us—but a whole region for growing—what do you suppose? *Imbeciles, idiots, paupers, and criminals.* Read the following:

Mr. Root:—Read the piece marked in inclosed page of *Atlanta Journal*, and say if you don't think missionary work is badly needed there.

Moultrie, Ga.

J. E. WILLIAMS.

Below are some clippings from the article submitted to me. As the article was of too great length for our pages, I have simply quoted the three first and three last paragraphs. If you want the whole of the officer's statement I presume the editor of the *Atlanta Journal* will be glad to furnish you. Ask for their issue for September 14.

"Why do the good civilized folk of America ignore a countryside people with adults who are mentally children; strong self-willed men and women of native stock who are without reason, judgment, or self-control?"

Miss Elizabeth Kite, State agent for the New Jersey School for Feeble-minded, put the question with a finality that accused. "You doubt the possibility? Then come with me to the Pines. You will find the district a plague-spot of moral contagion—a feeder for our jails, almshouses, and hospitals."

Next morning found us motoring through a lonely tract of 2000 square miles between the barren coast of New Jersey and the fertile Delaware Valley. This area of scrub cranberry-bogs and salt marsh is peopled with families of degenerates.

* * * * *

"Aunt Lil" was a little girl of twelve when her first baby was born. So was imbecile Louise. So, think of the awful pity of it, were a score of women in the sand-holes.

Consider the intermarried Dixon-Osborn clan, 199 individuals, of whom 13 are normal, 124 degenerate, 20 illegitimate, and 22 criminal, living on the outskirts of a country town.

Imbecile Betsie married defective Zacher, and became the mother of nine feeble-minded children, 12 feeble-minded grandchildren, 23 feeble-minded great-grandchildren. Of these, one died in infancy, eight lived in public institutions, no one knows how many

went to jail. One granddaughter, Mag, bore eight illegitimate children.

Can all this be really true in our United States of America? I devoutly hope it is not true, and that it has been largely gotten up for the "Sunday edition" to make a sensation. However, a large part of it must be true. Will the readers of *GLEANINGS* who are competent to tell us something more about it give us the facts?

I believe every one of our Protestant churches is supporting several missionaries in foreign lands. We have been priding ourselves that the great wide world has been pretty nearly canvassed; that there are very few places in Africa, South America, or the remote islands of the sea, where the Bible has not been placed and the gospel preached; but these people, as we learn from the part of the article I omitted, can neither read nor write. If this is true, what about the enforcement of our laws for compulsory education? Do not these just and righteous laws include *every portion* of the United States? There are public institutions for the care of idiots and feeble-minded in that vicinity, for the article alludes to them. Where are our missionary societies? Does the A. M. A. of the Congregational Church know any thing about it? I ask the question because I have in years past given it thousands of dollars to attend to just such cases as these. We have been told for years past of their great work among the "mountain whites" of the South; but the mountain whites can read. Booker Washington, in his great work among his people, does not mention ever having found a condition among the colored people anywhere equal to this. Our missionaries in Africa have never told us any thing to equal it. In this region the marriage ceremony is a dead letter. These people are "swapping" wives indiscriminately; and some poor mothers, who have children by different fathers *still living*, when they protest about being swapped about in this way are obliged to put up with it. If it were somewhere *away off*, we might shirk a great part of the responsibility; but this tract, covering ever so many square miles, is right in the neighborhood of Philadelphia, Baltimore, New York, and last, but not least, Washington. Can not something be done to stop *breeding* children from idiotic and imbecile parents? The *Atlanta Journal* gives a picture of a whole family. The father can neither read nor write, and the mother is an imbecile. The terrible responsibility rests on every

one of us, including you and *me*. No wonder we have awful crimes when we as a nation are *contributing* to the breeding and peopling of our country with idiots and imbeciles. The women are all mothers with large families, as you might suspect they would be; and where they have sense enough to know their condition they are groaning under their burdens. Where is the W. C. T. U.? where is the Salvation Army? where is the Y. M. C. A.? where are our Endeavor societies and our other societies of like import?

May the Lord be praised that he has permitted me through the pages of this department of our journal to take up and hold before the world conditions of this kind! Once more let me say it, we are making wonderful progress in improving our farm products; we are also making great progress in improving our domestic animals. Our experiment stations are showing us how to build up just the kind of horses, cattle, sheep, and even chickens, that we want. We have stopped raising scrubs, and are giving our time and attention to only the best improved varieties. There has been a *little* talk about better, brighter, and more intelligent *mothers* (yes, and *fathers* too), that we may fill our schools and finally our great nation with better and brighter men and women. May God help us to look after the *babies* that are being born and which are *going* to be born. And, finally, let us remember the responsibility placed on every one of us who is a follower of the Lord Jesus Christ to "go into all the world, and preach the gospel to every creature."

HUMANITY; WHAT ARE WE DOING IN THE WAY OF "SELECTING" BETTER FATHERS AND MOTHERS?

Did it ever occur to you how this present generation is going? Instead of the well-to-do people and those rich in "gray matter" populating this land of ours, it is the poor, and in many cases those who are lacking in intelligence. The rich and wise rear from only one to two children, while the lower classes are bringing up large families. What will this world come to at that rate? E. W. T.

Let me suggest to the good friend who sends the above, and asks to have his name omitted, that somebody recently called my attention to the fact that the children of millionaires, whether they happen to be few or many, are generally "no good." In other words, if a child is brought up with the understanding that his environments are such that he "don't *have* to" work for a living, this one thing too often makes him a useless "dude." And now if this is true, are affairs in such a *very* bad shape after all? Our great men and great women not only often come from humble surroundings, but

quite often, indeed, where the parents are poor, and have *large families*. Does it not behoove us then to be *sure* we are right before we push ahead too vehemently?

HOOKWORMS IN FLORIDA, ETC.

On page 391, June 1, I said, in speaking of the hookworm: "If this disease or parasite exists in the part of Florida where we are located, I have not heard of it." In the midst of a business letter from a man who is well able to speak understandingly in regard to Florida (for it has been his home all his life) he writes as follows:

Hookworms are a very common pest in Florida, and numbers of people are afflicted with them. It is much more prevalent than you think. Perhaps 20 per cent of all the people in the State are rather badly afflicted, some very badly. It can be stamped out easily by proper precautions as to closets and insisting on children wearing shoes. Still, it may be that it is spread by cattle and dogs. I have heard that this is so.

I do not care to be quoted, but you may use the letter if you desire, and say "name given on special request." As to the doctor's examination of the school children, I do not know if that was paid for by the Rockefeller contribution or not, but presume it was. I am doing all I can personally in talks with home people as well as chance acquaintances to impress the value of treatment against hookworms. The natives seem rather to resent the idea of these worms; but I clinch the argument by telling of results from our own boys' treatment.

I hardly need tell you that there is a large class of people, and especially real-estate dealers, who object to the publication of any thing like the above; but the good of humanity and the good of Florida people, especially the children, demands that they have the facts. There was considerable sport at one time, about Mr. Rockefeller's great gift; but you will see from the above that he well knew what he was talking about and what he was doing. I have also been told that people who are badly afflicted in this way, especially ignorant and colored people, absolutely refuse to go to a doctor. If I am correct, almost any physician is fully posted in regard to it, and will be able to detect the symptoms and apply a remedy.

ROACHES IN FLORIDA; HEADING THEM OFF.

While I am writing I wish to mention that, if Mr. Root doesn't want the roaches to eat the labels from his bottles, he should put the label on the bottom of the bottle.

Flemington, N. J.

J. P. HOHMANN.

My good friend, your remedy will work if the bottles do not get tipped over; and, besides this, it is a great deal handier to have a label where you can see it without lifting the bottle. I presume poison might be added to the mucilage by the label manufacturer or whoever makes the paste when the labels are applied.

Notes of Travel

Know ye not that your body is the temple of the Holy Ghost?—I. COR. 6:19.

I have all my life loved to travel, because it gives me such an opportunity to study humanity, or, if you choose, to study my fellowmen; and I especially enjoy seeing the progress that is being made toward *uplifting* humanity. I want to see especially what progress is being made, not only here in America, but throughout the whole wide world, in looking after the health and morals of humanity. Our great railways are spending not only thousands but millions toward giving more and better comforts to the countless throngs, high and low, rich and poor, that seem to be *always* traveling somewhere. It has rejoiced my heart every time I leave home to see the improvements going on. Our readers may recall the vigorous protests I have made from time to time (for forty years or more) against filthy toilet rooms and closets. It just begins to dawn on me that God, in his merciful love, gave me that "thorn in the flesh" (see Homes for Nov. 15) that I might keep better posted, and be better able to make public protest against shameful vandalism.

When I see a great new union depot in any of our big cities I am at once curious to know whether they have considered the matter we are now discussing, and how much *money* they have invested in it. For years I was disappointed; but now (thank God) there seems to be a glorious awakening. To illustrate: At Jacksonville, Fla., in the large union depot, there are plenty of clean tidy closets, and notices conspicuously placed, reading something like this: "Tobacco in any form must not be used in these apartments;" and, again, "\$25.00 fine for mutilating or disfiguring any of the furniture; this is a penalty enacted by law."

To enforce the above I think a porter is stationed; and this porter furnishes soap and paper towels for a nickel. Somewhere I have seen paper towels for a penny dropped in a slot. Good for Jacksonville!

But now listen: In the city of Tampa, in a brand-new fine union depot, the toilet seats, walls, and floor were spattered with tobacco quids and juice; varnished wood-work split and broken; dust and filth sticking to corners, etc., although just one year ago the room was in beautiful trim. However, there *was* one beautiful closed closet to be opened only by a "nickel in a slot," and this was protected by notices similar to those in Jacksonville.

It occurs to me that something might be said right here in regard to the demoraliz-

ing tendency of the tobacco habit; but some visitor at the "Home of the Honeybees" might "come back at me" and say, "Why, Mr. Root, the closets in your own factory at Medina, Ohio, are, at least *some of them*, stained with this same tobacco juice." With sadness and sorrow I can only reply that I hope our men employees may read *this*, even if they do not read *all* I write.

How about the closets on our fine Pullman cars that are fitted out with such shining furniture and elaborate expense? Some of them are nicely cared for, but many are not. I think, however, improvement is plainly visible every trip we take.

BROOKSVILLE, FLA., SUB-EXPERIMENT STATION

We did not take in the above on our trip here as planned, because we passed the branch railroad at St. Catherine in the night; but I started to make the visit on Friday, the 14th, taking the daily steamer to Tampa, where I was obliged to pass the night. I saw by a Tampa daily two things that interested me. First was a moving-picture show of figures that *talked* as well as moved. As a rule I seldom attend these shows, and never go to theaters, but I felt it right and proper to see what has been called Edison's latest and greatest achievement. The first act on the program was a splendid lecture by a talented orator and a most vivacious speaker. It was *not* an illusion. The man himself stood before you, and you could see every motion of his face and mouth, and his words were so clear I caught every syllable easily. In his talk he said if this^{*} invention had been known we might now have the pleasure of seeing Washington face to face, and hearing the father of our nation exhort his soldiers. To illustrate his talk he picked a dish from the table and mashed it on the floor. We saw the pieces fly, and heard the crash, saw an attendant gather up the fragments, and one had to pinch himself, almost, to realize that *no* dinner-plate had been dashed on the floor at all. A girl started out with a tin pail for water. We heard the pail rattle against the bushes, saw the water, and heard it splash as she filled her pail from the "old oaken bucket." Then a group of singers danced and sang, and every voice of the dozen singers was distinctly audible. Just as my conscience began sounding faintly, that "alarm bell" I have told you about, a waiter brought in a tray of beer-glasses with foam rolling off the brimming mugs; and when the singers stopped, they clinked their glasses before drinking. I got up (even though I was then on a front seat),

and went out. Why should this great and precious invention, this gift of God, be prostituted (when it opens up such possibilities) to illustrate a drunken revelry? I suppose it is because the multitudes demand such things; and I felt pained as I failed to notice that *any* one else in that audience of several hundred felt as I did, that it was time to go home.

Let me say a word here in commendation of the good people of Tampa. Whenever I was in doubt about finding my way I met most courteous responses, and different people went out of their way to put me on the right car, or to help me to a place difficult to find, in spite of my protest. This is a pretty good world, after all. If I am right, the saloons in Tampa have all been obliged to remove all screens from before doors and windows. Of course there was grumbling and protest; but Tampa police obey orders from their chief.

Let me digress a little before I mention the second thing that took my eye in the city daily. A few years ago I talked with Crenshaw Bros., seedsmen, about handling bee-supplies; but as they were then also in the commission business they said they could not well take on any more responsibility. Well, of late the brothers have divided up, in some way, and the truck, fruit, etc., are handled as a separate line in a different part of the city. Well, I saw in the paper that this latter firm had just received a shipment of *ten thousand* chickens from Tennessee. I was up before it was fairly daylight; and the crowing of the roosters greeted me to their great establishment. A great covered platform, which I suppose might be called a warehouse, was full of workmen, even at that early hour; and, besides the chickens, almost every line of goods that grows in the South was being crated and shipped to customers. Don't tell me any more that Florida people are "lazy." One of the boys told me about half of the 10,000 chickens had been sold and sent away. They were placed in pens of perhaps 300 or 400 each, and in each inclosure there seemed to be almost every breed represented more or less. The boys said they were sold in lots at 65 cts. each; but where a purchaser wanted to *take his pick* the price was more, for in the lot there were "Reds" and "Rocks" that would weigh much more than 65 cts. I wonder what the "chicken-raisers" in Tennessee get for their fowls.

The fifty or sixty miles to Brooksville is almost an unbroken wilderness except for the turpentine camps; and as we near the town we come into the Florida hills. In fact, I did not know before there were such

hills and valleys in the whole State. To get home this Saturday night I found I should have to get an automobile to catch the Seaboard train at Dade City, about 25 miles, over a sandy road. As the experiment station was out about four miles toward Dade City we figured to start about as soon as I could get my dinner; and to get as much time as possible at the government station, I (at least for once) ate hurriedly. On the bill of fare at the hotel my eye caught "baked yams," which I ordered with roast beef, etc. When the yams came I thought at first they had by mistake sent a big round and smooth beet. It was baked so the outside was slightly charred; but on mashing I found it yellow and dry, and tempting to look at. I shook out the floury inside on the platter of roast-beef gravy, and took a taste. Why, it was worth the long trip to Brooksville, almost, to get that dinner of *baked yams*. I have written for some cuttings, and will report later. After my 20-cent nice dinner I found a two-seated Ford at the door, owned by a man who had run it only six weeks. He said his wife would like to go along if I, who hired the rig, did not "object." Did anybody *ever* hear that A. I. Root objected to a woman being in the crowd?

Prof. Gomme, of the government station, is a big stalwart Texan, and I soon found he was "big" in many ways. As I could spare only about an hour we talked fast. Pretty soon a bright little woman came out on the porch and said she wanted to be introduced to Mr. Root, for she just overheard something he said about "chickens." Chickens indeed! I wonder if it is true that I do *sometimes* "talk about chickens." We went out and got the other woman into the auto; and didn't we talk chickens and almost every thing else? Mrs. Gomme has ducks and chickens, both, and is just getting the fever for "weeding out the drones" with trap nests, etc.

Uncle Samuel has searched Florida for the best soil for dasheens and a lot of other stuff, and decided on this spot where oak trees grow as large around and as tall as almost anywhere up north; and this little woman with one child is almost alone in the wilderness. As nearly as I could learn, there are no white women living much nearer than Brooksville. No wonder she could "talk" when she found somebody besides the ducks and chickens.

On p. 738, Oct. 15, I gave a report of this government station, and suggested that "millet 18 feet high" might be a misprint. There was no misprint. This wonderful plant is not only standing thicker than

closely planted corn, but it is excellent for horses and cattle, and for filling silos. Listen:

"Mr. Gomme, you must have used a tremendous lot of fertilizer or stable manure, or both, to get this enormous crop."

"Not a bit of *either*, Mr. Root. Newly cleared Florida soil did it all."

What do the good friends who say "nothing will grow in Florida" have to say to the above?

I saw papaya trees with more than a wheelbarrow full of great "melons" on a tree; and so many things from all over the earth being tested I can not remember a tenth part of them. The dasheens were just plowed up, and lying on the ground—about 2000 bushels. All the small ones are to be given to applicants. I think 1000 or more requests are now waiting their turn, when the tubers are dry enough to mail. Mr. Gomme advised planting about Feb. 15 here in Florida; but my impression is they can be planted any time below the frost-line. My neighbor, Mr. Ault, this morning dug two hills (see picture p. 784) that went 17½ and 17¾ lbs. respectively. Mr. Gomme plows under the great fleshy stalks to enrich the ground; but we found them even more luscious for a stew, as I have described,

than the baked tubers. The latter should be dug and dried out in the sun for a couple of weeks before trying to bake them. No other vegetable is so easy to prepare for the table. Just brush the tubers well with a good stiff brush, and they are ready to go into the oven.

Notwithstanding the sandy hills and roads that crooked between the trees at almost every rod, we made Dade City 45 minutes before train time. In some places it seemed as if almost every tree close to the road had been barked by automobile hubs. The 25-mile trip cost me \$7.00. Let me resume the subject I started out with, by one more illustration.

As I purchased my ticket at Dade City I asked to be directed to the water-closet. Didn't have any. I asked the freight clerk for the nearest place, and he said, "Court-house two blocks away." At the court-house (a nice new brick), some expensive closets had been installed; but they were bespattered with tobacco, the room was unswept and untidy. Dear brothers and sisters, is this a fair representation of the present stage of civilization? Should not our court-houses be in some sense "temples of the Holy Ghost" as well as temples of law and justice?

Health Notes

HOT-WATER INJECTIONS, ETC.

Our older readers may remember I was once quite enthusiastic about this form of water cure. They may not all recall, however, that later on I dropped it and advised against it. Here is what Terry says in the *Practical Farmer* in regard to the matter:

Injections are all right for emergencies; but for a steady practice drink enough water and eat proper food so nature will attend to the movement of bowels. Is not this natural and sensible? You say a doctor who edits a certain health magazine is constantly advising the internal bath. Yes, and turn over to the advertising pages and you will find that he is interested in the sale of a costly contrivance for introducing water in this unnatural manner. He says there that he can prove that 90 per cent of all your ailments are due to constipation. Very well; and I can prove that plenty of water put in the mouth in a natural way, along with food which has in it the natural coarse parts which the bowels need, will cure and prevent constipation without the use of his instrument at all. I have seen reading-matter praising this instrument in a California paper, and then the advertisement in another place, probably both paid advertisements. Don't be caught in any such easy manner. It is, of course, far better to use this contrivance than to be constipated. But it is better yet to live properly, and have no earthly use for it.

The above is all right, as Terry outlines, for an emergency. When you are in great distress, and can get relief in no other way,

by all means use the hot-water injection; but after that, try to live so that nothing of the kind will be needed—that is, be careful what you eat, and be careful about over-eating. It is now several years since I had occasion to use any thing of the kind.

SEX HYGIENE FOR SMALL CHILDREN.

For some time I have been somewhat worried and anxious about the rush to teach small children sex hygiene. I was invited to be present on one occasion where a distinguished physician gave a talk to school children. His talk was all right, and splendid for boys a dozen years old or so; but I really felt troubled to see some little chaps on the front seat, but little more than half a dozen. Another thing, I had a strong feeling that the mother should be the teacher, and not the teachers in our public schools, nor even a great doctor. The following, which I clip from the *Chicago Advance*, sums up my ideas pretty thoroughly in just a few words:

SEX HYGIENE: A WARNING.

Within the last year there has been a perfect epidemic of sex consciousness, one aspect of which has been a vociferous demand for the teaching of sex hygiene to children.

There is real need of something in this direction, but we wish to utter a reiterated warning. Whatever else there is in this movement, one thing has been evident in many of the discussions, the attempt to secure instruction on sex hygiene in public schools constitutes one more effort of parents to shirk their God-given responsibility. No well-meaning maiden lady giving blushing lessons out of a text-book, no imported lecturer with exaggerated ideas of sex consciousness, can be any proper substitute for fathers and mothers, and these may do great harm. We have no doubt of the good intentions of most of the people who are behind this movement, but we have grave doubts of the practical wisdom of many of them.

Awakening a childish interest and curiosity in things they are not old enough to comprehend properly is the trouble. I think I must have been six or seven years old when I went to my mother (bless her memory) and asked her something in regard to a certain word I found frequently in the Bible. Her reply was something like this:

"My child, will you not take mother's word for it that it is best for you to drop this matter until you are a little older? You are not able to understand it now. Now please trust your mother a little more, and do not go to the boys nor to anybody else about it. Mother knows best, and she will teach you about all these things when you get to be a little older. Will you not trust her?"

I gave her my childish promise, and stuck to it pretty well; and when I happened to overhear the talk of bad boys in regard to this matter, my mother's warning prompted me to keep away from them. I have reason to believe there are quite a number of mothers who will agree with me here. Now, dear mothers, have you taken the same pains with your young boys that my mother wisely took to protect me in my childhood from grave danger?

Temperance

WHISKY FOR SICK FOLKS—SEE P. 743.

The *Union Signal* for Nov. 6 contains a full-page article in regard to this matter, and informs us that a hospital in England has been run for *forty years* without the use of any liquors, and its record is ahead of any similar institution, as we know it would be. Now, there, if your family physician is prescribing intoxicants he is not up to date; and if he refuses to inform himself, get a different doctor. Just consider for a moment a *hospital* in this enlightened nation that, instead of giving its innocent inmates *health*, gives them that which helps on to—"hell."

IF RUM IS BAD FOR THE INDIAN, HOW DOES IT HAPPEN THAT IT IS NOT ALSO BAD FOR THE WHITE MAN?

We clip the following from the *Wheeling Advance*:

GOVERNMENT BARS RUM ON PUEBLO RESERVATION;
SUPREME COURT SETTLES LONG-PENDING FIGHT
RELATIVE TO QUESTION OF LIQUOR FOR INDIAN WARDS OF UNITED STATES; LIQUOR GANG SUFFER A TELLING BLOW.

WASHINGTON, Oct. 23.—The supreme court held to-day that the Pueblo Indians are under the guardianship of the government, and liquor could not be taken into their country without violating the federal law.

The decision marks a long fight to distinguish those Indians who have lived in towns since long before the first white settlement in the United States, from the tribes which have been held to be wards of the government.

The case has been hard fought, and the defeat of the liquor gang is a stunning blow. Advocates of temperance, however, are inquiring why, if the highest court in the land holds liquor bad for the red man, it should not be equally bad for the white man. To be consistent, it is urged that the government

should submit at least the resolution for an amendment to the federal constitution to prohibit the sale and manufacture of the beverages, in order that the several States might express themselves upon it.

A CELLAR FULL OF WINE 25 YEARS OLD, BUT STILL A TEMPERANCE MAN, ETC.

My grandfather, a naturalist, horticulturist, and wine-raiser, taught me to despise tobacco and liquor. Strange to relate, grandfather had the cellar full of wine, some 25 years old; but he hardly ever drank any except as a test. He was from the Rhine River, Hessen Darmstadt, a wine country. Naturally grapes were his work. This goes to show what *will power* is. The hard-cider barrel, seemingly harmless, has started many a drunkard, as our village character admits.

One poor disciple of "John Barleycorn" passed through our yard just as I had a few frames of honey out. He said, "So! that the work of the busy bee? Fine and wonderful. Sure, and they must work to do it; and I would do the same if they'd let me sleep all winter and ate honey bread." I could not give him an answer, as a witty Irishman is past my slow mind. One of his sayings is, "I was conceived in misery, born in poverty, raised in ignorance; so, blame me not. I have enough to eat, and can eat it, so I am rich."

Hillside, Ill., Sept. 11.

GEO. A. WOLFF.

WHO IS TO BLAME?

The *Union Signal* says:

"The first step toward the elimination of sin is to get after the man who makes money out of it," is the terse way *Collier's Weekly* outlines the course of procedure in fighting the traffic in drink and vice.

VOTES OF WOMEN WIN SWEEPING VICTORIES IN ILLINOIS FOR PROHIBITION.

As we go to press, election returns show that 22 Illinois cities and towns were carried by the dries. Thirty-one counties in the State are now entirely dry. Women went to the polls in large numbers, and voted dry in about the ratio of four to one.—*Union Signal*, Nov. 6.

Index to Gleanings in Bee Culture

Volume XLI

In using this index the reader should not fail to note that it is divided into five departments, namely, General, Editorial, A. I. Root's writings, Contributors, and Illustrations. The index of General includes everything except Editorials and A. I. Root's writings.

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CLEANINGS IN BEE CULTURE FOR 1914

The Magazine for the Beginner, Back-lotter, and Specialist Beekeeper

For several years we have been doing our best to make GLEANINGS an indispensable publication for the wide-awake beekeeper whether he has but one colony, a small suburban apiary, or a series of out-apiaries numbering hundreds of colonies in all. We believe we have never received such enthusiastic approval of our efforts as we received in 1913 when hundreds of letters from our friends told of their appreciation. We wish that we might print a number of them here, but we prefer to utilize the rest of the space for outlining our plans for 1914.

For 1914 we shall continue the special numbers, the feature which has so delighted our readers during the last three years. In deciding just what subjects to take up, we have not selected topics at random, for we have been guided by the expressions of the majority.

JANUARY 1—BEES AND POULTRY.

—We think we are safe in saying that no special number that we ever published proved so popular as our February 15th issue for 1912. In getting out another special number devoted to the interests of poultry-raising and beekeeping, we propose to surpass our former efforts and to get together the best material possible on poultry-raising from the beekeepers' standpoint.

FEBRUARY 1—BEES AND FRUIT.—

Our March 15th issue for 1912 has been used far and wide by beekeepers and fruit-growers alike to show the value of bees in large orchards. In the two years that have elapsed, however, so much new material has developed that in order to be entirely up to date it is really necessary to have another special number on the same subject. We have a wealth of material that has never before been given to the public. Extensive fruit-growers who are not especially interested in *honey*-production will tell of the value of bees in orchards.

MARCH 1—BEEKEEPING IN CITIES.—

Probably few beekeepers realize the number of beekeepers there are in every large city. City beekeeping is a most interesting topic, and in addition to stories of beekeeping told by professional men we shall have discussed various problems connected with bees in attics, on roofs, and in back lots. We also have a *true* story of a beekeeper in a city who was fined \$100.00 because his bees were considered a nuisance, and who afterward appealed to a higher court and won out. Good story.

APRIL 1—BREEDING.—

Ever since we first began having special numbers there have been requests on the part of a good many of our readers for a special number on breeding. We are glad that we are able to arrange for it this year, for it is a fact that very little is known in regard to breeding bees. Breeding is one of the most important subjects connected with our pursuit.

We shall publish special articles by noted queen-breeders on qualifications of breeding queens. Queen-rearing both for the small beekeeper and the specialist will be fully discussed.

JUNE 1—MOVING BEES.—We ourselves expect to move three hundred colonies of bees to Florida, get a good honey crop, double the number of colonies, and move them back again in the spring. Details of moving by boat, wagon, auto-truck, and by rail will be fully described and illustrated, and other large beekeepers having experience along this line have also promised articles for this number.

AUGUST 1—CROP AND MARKET REPORTS.—There has never yet been a systematic effort put forth for the compiling and publishing of comprehensive crop and market reports from various parts of the country. In 1914 we are going to make the effort of our lives to get telegraph reports from important fields, such as the clover-belt, Texas, Colorado, Idaho, and California. etc. These will be published right along as soon as we can get them, but in this August 1st issue we shall have a grand summary of the crop reports and conditions of the market in general. No beekeeper should miss this important number.

SEPTEMBER 1—WINTERING.—We have not learned all there is to be learned in regard to wintering. A number of specialists are going to make experiments during the winter of 1913-14, which experiments will be published in this number. We shall also give our own experience summed up as to the feasibility of wintering northern apiaries in the South.

IS NOT ALL THIS WORTH WHILE?

We have now given you our plan for 1914. If you are trying to make the most out of your bees we feel sure you can not afford to miss such a wealth of information as the subscription price, \$1.00, will bring you.

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VOL. XLI. JAN. 1, 1913, NO. 1.

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Many helpful and valuable suggestions will be found within the 44 pages this booklet contains, and it is a pleasure to announce its addition to our Bee-keepers' 10-cent Library. Order by name or specify Number 25.

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except from the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and en-

tirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8; beeswax, 30.

Boston, Dec. 18.

BLAKE-LEE CO.

ALBANY.—Honey market is quite bare of any lots of comb honey that are not candied and in good order—such as is of nominal value only. White honey in good condition sells high for both comb and extracted.

Albany, Dec. 16.

H. R. WRIGHT.

INDIANAPOLIS.—Fancy white sells at 18 in ten-case lots; No. 1 white 1 ct. less; amber comb is in slow demand and at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. There is an excessive demand for comb honey, but very little is now being offered by producers. Beeswax is in good demand, and producers are being paid 30 cts.

Indianapolis, Dec. 17.

WALTER S. POUDEE.

NEW YORK.—Comb honey is getting well cleaned up, and prices are very firm on all grades. While some small shipments are coming along as yet, the bulk of the crop has been marketed, and from now on receipts will be next to nothing. We quote fancy white at 16; No. 1 white, 15; No. 2 white, 13 and 14; dark and mixed 12. The market is easy on extracted honey, and prices are gradually declining—especially so on Porto Rican and other West Indian honey. Receipts of new crop have been quite large recently, and will probably continue so for several months to come. The demand is very light, hence the decline in prices. We quote West Indian at 75 cts. per gallon; white clover at $8\frac{1}{2}$ to 9 per pound; California light-amber sage, 9 to $9\frac{1}{2}$; buckwheat, 8.

New York, Dec. 17. HILDRETH & SEGELKEN.

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We are beginning now to replenish our stocks. We shall have carload orders coming from the factory very often for the next few weeks. Special orders placed now can have just the attention they need, both here and at the factory, and you may have your goods sent in one of our cars, thereby saving on transportation charges. Regular stock will come straight to you from our warehouse in new unbroken packages, and you can put the goods together in your odd minutes, thereby saving the expense of extra help in the spring.

Our usual discounts for early orders apply again this season—3 per cent for cash orders sent in January, the discount diminishing one per cent per month as the season advances. These discounts mean a considerable saving, and you might as well take advantage of the highest by ordering now. No change of prices has as yet been announced, and you may, therefore, order from your present catalog. If your catalog has been mislaid, write us at once and we will send another.

If your season's crop of honey is not yet disposed of, we can give you a good price and handle it promptly. Send samples of extracted and full information as to containers, flavor, quantity, price, etc. We also handle comb honey.

C. H. W. Weber & Co.

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Cincinnati, Ohio

Gleanings in Bee Culture

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DENVER.—We quote comb honey in a jobbing way at the following figures: Strictly fancy white, \$3.15; No. 1, \$3.05; choice, \$2.85; No. 2, \$2.70; extracted honey, white, 9; light amber, 8; strained, 6½ to 7. We pay 26 cts. in cash and 28 in trade for clean yellow beeswax delivered here.
THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Dec. 19. F. RAUCHFUSS, Mgr.

SCHENECTADY.—As usual the market has assumed a very quiet condition during the holiday period. A few small shipments of clover comb are still arriving, but no buckwheat. We do not change quotations from our last report, but market is less firm. There is a continued demand for buckwheat extracted, but none to be had here; light in moderate demand.
Schenectady, Dec. 18. CHARLES MACCULLOCH.

CINCINNATI.—The demand for comb and extracted honey is light, with a good supply. No. 1 white comb honey sells in large lots at \$3.60 per case of 24 sections. There is no demand for off grades. White extracted honey in 60-lb. cans is selling from 9½ to 10 cents; light amber in barrels, 7 to 7½; in 60-lb. cans, 8 to 8½. Beeswax, fair demand, sells at \$33.00 per hundred. The above are our selling prices, not what we are paying.
Cincinnati, Dec. 21. C. H. W. WEBER & CO.

ZANESVILLE.—The demand for honey is not quite so brisk, which is not strange in view of the proximity of the holidays. Stocks are about sufficient to take care of present needs. Best white comb goes to the retail grocery trade at 18 to 19. In a jobbing way prices would be a cent or two lower. Best white extracted in 60-pound cans is quoted at 10 cts. Producers receive for beeswax 30 cts. in trade, 28 in cash.
Zanesville, Dec. 17. E. W. PEIRCE.

ST. LOUIS.—We quote fancy white comb honey at 16 to 17; No. 2, 15; light amber, 12 to 14; dark, 9 to 11. As most of the honey is sold by the case, we quote fancy white California at \$3.50 to \$3.75; No. 2, \$3.25; light amber, \$3.00 to \$3.25; dark, \$2.40 to \$2.50 per case. There is not much demand for extracted honey, and it is quotable as follows: Light-amber southern, in barrels and half-barrels, 7; dark, 6 to 6½; same grade of honey in five-gallon tin cans, ½ cent higher. White-clover and California white, 9 to 9½; light amber, 8½. Beeswax is in good demand at 30 cents for prime. Inferior and impure sells for less.
St. Louis, Dec. 20. R. HARTMANN PRODUCE CO.

CHICAGO.—Honey sold well during the first half of December; but stocks are still heavy, and prices are being made at less than quotations herein given by people who do not make a specialty of honey; hence it is difficult to give the exact figures. We quote No. 1 white comb honey from 15 to 16, with the fancy bringing 17. No. 2 white, 10 to 14; No. 1 to fancy amber, 13 to 15. Dark grades of comb, and lots out of condition, sell at from 8 to 10. Extracted honey, in new cans and cases, white clover and linden, brings 9 to 10; other grades of white honey about 8, with amber grades ranging from 7 to 8. Beeswax is steady at from 30 to 32, according to color and cleanliness.
Chicago, Dec. 18. R. A. BURNETT CO.

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THE BANK THAT PAYS 4 PER CENT

KANSAS CITY.—The supply of honey is equal to the demand. The demand is fair for both extracted and comb. We quote No. 1 white comb, 24-sec. cases, \$3.15 to \$3.25; No. 2 white comb, 24-sec. cases, \$3.00; No. 1 amber comb, 24-sec. cases, \$3.00; No. 2 amber comb, 24-sec. cases, \$2.50 to \$2.75; Extracted white, per pound, 8 to 8½; extracted amber, 7 to 8; beeswax, 25 to 28.
Kansas City, Dec. 18. C. C. CLEMONS PRODUCE CO.

CINCINNATI.—There is a big supply of both comb and extracted honey, and the sales are slower than they have been for some time back. This is quite natural, for Christmas candies and nuts have the attention of the buying public at this time of the year. We are selling fancy comb honey at \$3.75 to \$4.00 a case; and our best grades of extracted honey in 60-lb. cans at from 8½ to 10 cts. per lb.; amber extracted honey in barrels at 6½ to 8, according to the quantity and quality purchased. For choice bright yellow beeswax we are paying 28 delivered here.
Cincinnati, Dec. 17. THE FRED W. MUTH CO.

LIVERPOOL.—Thirty-seven barrels of Chilean honey sold, various piles, at the all-round price of \$6.24; 15 barrels, pile 1, sold at \$7.68, and 25 barrels, pile 10, at \$8.16. Nothing of importance in Californian or Jamaican. Quotations are unchanged at \$10.20 and \$6.84 to \$7.80 respectively. Market is steady. Quotations are as follows: Haitien, \$6.48 to \$7.92; Peruvian, \$5.76; Chilean, \$6.24 to \$8.16. During the past week a few bags of medium to good quality Chilean beeswax have been sold at \$37.62 to \$38.88; African, \$34.26 to \$34.62.
Liverpool, Dec. 14. TAYLOR & CO.

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Cold facts showed heavy winter losses a year ago. We can look for losses this winter, too.

How about NEXT winter? What are you doing about it? We suggest the Buckeye Beehive as the remedy. One severe winter will save more than the cost of the hive. You can buy them cheaper in January than June. . . . Write us about it.

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By Virgil Sires, North Yakima, Wash.

These are just three of the articles that will appear soon in the *Beekeepers' Review*. There were 74 of them during 1912. We had 64 contributors. They were not articles written out for pay, either, but those sent in on the spur of the moment, when all the faculties were tingling, and that kind is always the best. Possibly their fingers were daubed with propolis when they wrote some of them. But they had an idea they wanted to give you that had helped them. It came just as they would have told you had you been where they could talk to you. And that is just the kind of contributors we will have for 1913. Their articles will ring with practicality; and the best articles often come from the most unexpected places.

Send in your \$1.50 now, and get full membership in the National, full membership in a branch, and the *Review* each month for a year.

Write

The National Beekeepers' Assn.
214 Hammond Bldg., Detroit, Mich.

A Beginners' Department to start in the January number



"If Goods are Wanted Quick, Send to Pouder."

Many of my friends are calling my attention to the luxuriant sod of white clover which now covers our central States; and this feature, with the fact that bees went into winter quarters strong and with an abundance of wholesome stores, would indicate that this is going to be a piping good season for the wideawake bee-keeper. With these conditions in view I have, as usual, prepared myself with a very complete stock of the finest and latest equipments for those who are interested in the bee industry. Hives in all their different patterns and combinations; the Buckeye double-walled hive, Danzenbaker hives, regular dovetailed hives, and all equipped with supers of any design that may best suit your requirements. Sections, comb foundation, smokers, veils, and honey and wax extractors—everything required in the apiary; and the goods are here, so that you get prompt returns after placing your order here. To those who have not dealt here during the past twenty-four years I wish to explain that the goods handled are manufactured by The A. I. Root Co., and the kind that are in use by the most progressive everywhere, and my prices are the factory schedule, whether you require one hive or one hundred. If you've planned to place your order elsewhere I'd be grateful if you would submit a list of goods wanted for an estimate, and this would place you under no obligations whatever.

Many of the articles described in my catalog can be delivered by parcels post, and I am devoting special care to this line of business.

If you are in need of more finest honey for local demands I can supply you. Ask for my monthly quotations of the Indianapolis honey market.

I can use more beeswax on a cash or trade basis.

I should like to place my catalog in your hands.

Walter S. Pouder, Indianapolis, Ind.

859 Massachusetts Avenue

Holiday Greeting!

I take this opportunity to thank my customers and friends for the patronage, help, and encouragement given me during the last and former seasons. It has been my aim to have you all feel that I have sought, not your money alone, but your good will and friendship as well. My relations with you have been most pleasant, and it is a satisfaction to know that possibly I have rendered you some service. If in the future I can help you in any way, I shall count it a privilege to have your calls.

While any forecast of weather or crop conditions necessarily involves elements of uncertainty, the outlook for a good honey-flow in the North Central States the coming season could hardly be better. An order placed now will insure having the supplies on hand when needed, and will avoid the possibilities of vexatious delays when the rush is on. The December discount of 4 per cent is also a consideration.

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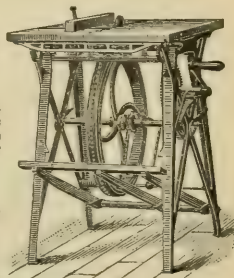
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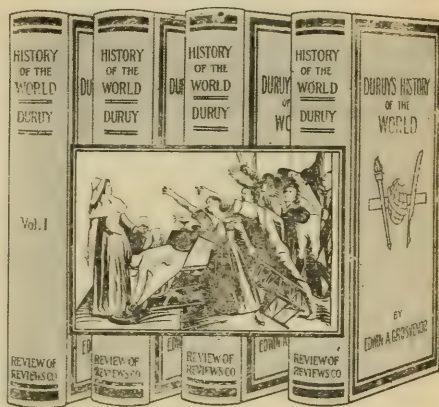
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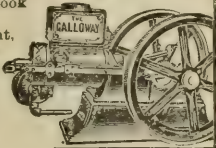
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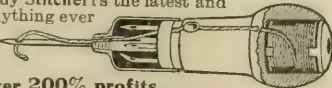
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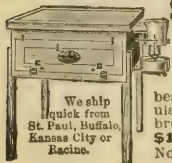
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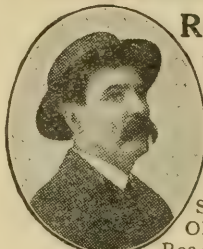
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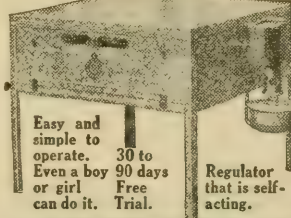
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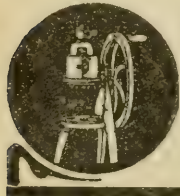
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A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 8 North St., Adams, N. Y., and he will send you a free trial package, also color-card and full information showing you how you can save a good many dollars. Write to-day.

NO MORE RABBITS

If you want a cheap, simple, absolutely sure way to keep EVERY Rabbit and EVERY Borer out of your orchard, paint your trees with "SULFOCIDE" the new concentrated sulphur compound. Simple to prepare. Cheaply and easily applied. One application will last for six months. Absolutely certain. "SULFOCIDE" will solve the rabbit problem. Write Today for booklet, "SULFOCIDE—Sure Protection from Rabbits and Borers." Address: E. C. Pratt Co., 50 Church St., N. Y. City.

NO MORE BORERS



4 BUGGY WHEELS FREIGHT PAID \$8.75

With Rubber Tires \$18.45. Your Wheels Re-rubbered, \$10.80. I make wheels $\frac{3}{4}$ to 4 in. tread. Tops, \$6.50. Shafts, \$2.10. Repair Wheels, \$5.95. Axles \$2.25. Waggon Umbrella free. Buy direct. Ask for Catalog 47.

SPLIT HICKORY WHEEL CO., 547 E. 5th, Cincinnati, Ohio.

Poultry Profits And Honey Money

Poultry and egg prices are away up! Big money in 1913 for poultry raisers. Why not add this profitable business to your own? Go at it the right way. Investigate

CYPHERS INCUBATORS & BROODERS

World's Standard Equipment. Write today for the greatest free book of the year for poultry men and poultry women. Tells of Cyphers Company methods for best results. 244 pages of richly valuable, practical information. No matter whether you are sure you want to buy an incubator or not, send for this great Free Book Today.

Cyphers Incubator Co.

Dept. 69 Buffalo, N. Y.

New York City, Boston, Mass. Chicago, Ill. Kansas City, Mo. Oakland, Cal. London, Eng.



YOUR HENS YOUR FARM YOUR MONEY

The Story of 25 Years

with Poultry and Farmers and Fanciers will help many Farmers get more eggs—better prices; make more and save more money; tell things few folks know on making money with hens. Find out about America's Largest Line of Incubators and Brooders, and get six poultry chapters written by Robert Essex himself—It's all in our Free Catalog—Write today. Address Robert Essex Incubator Co., 81 Henry St., Buffalo, N. Y.



Latest Book "Profitable Poultry,"

Finest published, 128 pages practical facts, 180 beautiful pictures. Tells how to breed, hatch, feed and market by latest improved methods. All about world's famous Runner Ducks and 52 other pure-bred varieties. This 50-cent book and lowest price list of best fowls, eggs, incubators, supplies, etc., only 5 cents. **BERRY'S POULTRY FARM, Box 97, Clarinda, Iowa**

STUDY BEE CULTURE BY MAIL

There is money in Bees if you know how. Make a good living from Bees or keep down the high cost of living. Always a good demand for men who know Bee Culture. Just the opportunity you have been wanting—learn at home. You can make your spare time count and finish this course this winter by beginning now. This excellent course prepared by E. R. Root, the foremost exponent of Scientific Beekeeping. Also splendid correspondence courses in General Farming, Truck—North or South, Poultry, Fruit, Flowers, Greenhouse, Soils, Dairying, Farm Management, Farm Book-keeping, Farm Veterinary. Writing for the Farm Press, Mushrooms, Ginseng, etc. Original and largest school devoted exclusively to teaching farming by mail. Write to-day for **Free Booklet "How to Make the Farm Pay More."** also temporary low rate, easy terms, full particulars. (Which course interests you?) (No agents.) Free sample lesson from General Farming Course on request.

American Farmers School, 281 Laird Building, Minneapolis, Minn.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE.

Clover honey of finest quality, in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—We offer broken comb honey in 65-pound tins at 10 cents per pound, f. o. b., Cincinnati. C. H. W. WEBER & Co., Cincinnati, O.

Finest extracted water-white alfalfa and amber alfalfa honey in 5, 10, and 60 lb. cans. Samples 5 cts. DADANT & SONS, Hamilton, Ill.

Basswood honey in 60-lb. cans at 9 cts. per lb. Pure maple syrup at \$1.00 per gallon. L. D. GALE, Sherman, N. Y.

FOR SALE.—The finest extracted honey I ever produced—gilt-edged in every respect. Clover with a little basswood flavor. In 60-lb. cans. Sample free. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Extracted alfalfa honey, in any quantity. Prices on request. WASHINGTON HONEY-PRODUCERS' ASSOCIATION, Sunnyside, Wash.

FOR SALE.—White clover and basswood honey in new 60-lb. square cans. Write for prices, and state how much wanted. L. S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Raspberry Honey. New five-gallon can, \$6.00, F. O. B. Waymart, Pa. Sample 10 cts., deducted from first order. J. D. HULL & BRO., Honesdale, Pa.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb and extracted honey and beeswax. Write us. HILDRETH & SEGELKEN, New York.

WANTED.—To buy amber extracted honey. Send sample with lowest price. D. H. WELCH, Racine, Wis.

WANTED.—To buy amber and dark extracted honey. Name price delivered here. A. G. WOODMAN Co., Grand Rapids, Mich.

HELP WANTED

Help wanted for season of 1913. State age, experience, and wages wanted, in first letter. MATHILDE CANDLER, Cassville, Wis.

WANTED.—Man to run 140 colonies for comb honey for season 1913. State salary wanted, and experience. Everything new. Care C. B. & Q. Ry. B. F. SMITH, Jr., Cowley, Wyo.

One apiarist, queen-breeder, one assistant apiarist, desire engagement to work one or more apiaries on salary or shares for 1913; west of the Rocky Mountains preferred. References exchanged. APIARISTS, Rt. 3, Box 9B, Oroville, Cal.

WANTED.—Thoroughly experienced beeman to help care for 300 colonies near Albany, N. Y. No others need apply. A good chance for a man who can make good. State full particulars about self, and wages expected, in application. Present address, D. L. WOODWARD, Box 177, Bradentown, Fla.

FOR SALE

A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Root or Falconer bee supplies. Free catalog. Save freight. G. F. STANTON, Buckingham, Fla.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

FOR SALE.—At bargain prices, 8-frame double-wal hives in flat, to reduce stock. A. G. WOODMAN & Co., Grand Rapids, Mich.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

New crop white-sweet-clover seed, 2000 lbs. unhulled; 4 lbs. by mail, prepaid, \$1.00; 50 to 100 lbs., 12 cts.; sacks 25 cts. extra. R. L. SNODGRASS, Harrisburg, Colo.

SEED WHEAT.—Improved Poole seed wheat—one of the highest yielders at the Ohio Experiment Station, where this seed originated. Guaranteed free from all foul seeds. Recleaned ready for drilling. Write for prices. L. H. RANDALL, Medina, O.

Bee supplies for all southern Idaho and east Oregon beekeepers, wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest. C. E. SHERIVER, Boise, Idaho.

Notice.—My December offer on Eureka cases is limited to first 1000 accepting the same before Jan. 20; also some White Rock bargains. B. T. BOSSERMAN, Williamstown, O.

WANTS AND EXCHANGES

WANTED.—Carload of bees in the East. CHARLES ZWEILY, Holtville, Cal.

WANTED.—Small extractor. State price and kind. W. J. CORLETT, Clifton, N. J.

WANTED.—One 12 or 16 inch cigar-box planer. What have you to offer? R. H. SCHMIDT, Rt. 3, Box 209, Sheboygan, Wis.

POSITIONS WANTED

SITUATION WANTED.—By a thoroughly competent man; temperate habits; 10 years' experience in California situation, in the bee line. A. M. JOHNSON, North Bloomfield, Ct.

SITUATION WANTED.—By a young man who has successfully passed his examinations after taking a course of lectures and demonstrations in apiculture at the Ontario Agricultural College. Any one desiring help of this kind for the season of 1913, kindly correspond with Morley Pettit, Provincial Apiarist, Ontario Agricultural College, Guelph, Ontario.

REAL ESTATE

FOR SALE.—3 acres, 7-room house, 40 colonies bees. Write for particulars. A. C. COOPER, Wyoming, Ill.

Uncle Sam still has a few free farms in Florida. For a reasonable fee I will locate you on a homestead near here. F. M. BALDWIN, Terra Ceia, Fla.

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

BEES AND QUEENS

Our queens will please you. Price \$1.00 each.
C. W. PHELPS & SON, Binghamton, N. Y.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

FOR SALE.—150 strong colonies of bees in the best of condition for winter; no disease.
WILMER CLARKE, Box 397, Earlville, Mad. Co., N. Y.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super, redwood, dovetailed, three coats white, sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnett's, Va.

FOR SALE.—100 stands of bees; one 6-frame extractor, reversible; two 170-gallon tanks; one uncapping-tank and all necessary supplies. For particulars address
M. O'LAUGHLIN, Miramar, San Diego Co., Cal.

We will requeen all our 2000 colonies this spring. We offer the one-year-old queens, removed from these hives, at 40 cts. each; \$4.20 per doz.; \$30.00 per 100, delivered any time before June 1. Your money back if not satisfied. First come, first served. Book orders now.

SPENCER APIARIES Co., Nordhoff, Cal.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

FOR SALE.—High-class hunting, sporting, watch, and pet dogs; puppies of all varieties a specialty. On receipt of 10 cents we mail highly descriptive illustrated catalog, which gives full information of 49 breeds of dogs; several breeds of cattle, sheep, swine, rabbits, ferrets. Price list of poultry and pigeons.
C. LANDIS, Dep't 230, Reading, Pa.

POULTRY

Buttercups and Kellerstraus Orpingtons at bargain prices if taken soon.
CLAUD IRONS, Linesville, Pa.

Sicilian Buttercups. "Quality, not quantity," our motto. Eggs, \$1.50 and \$3.00 per 15.
WALTER M. ADEMA, Berlin, Mich.

Standard-bred heavy-laying Barred Rocks, S. O. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

INDIAN RUNNER DUCKS

Fawn and white Indian Runner ducks eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.

KENT JENNINGS, Mt. Gilead, O.

INDIAN RUNNER DUCKS.—American Standard light fawn and white. I have a fine lot of one-year-old breeders for sale at a real bargain price. I can start you, and start you with the best. Write me.
C. O. YOST, Rt. 4, Box D, Winchester, Ind.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1912; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Convention Notices

The Washington State Beekeepers' Association will hold its annual convention January 8 and 9, 1913. We expect to have the best convention that has ever been held here. We have invited Mr. G. W. York to be with us if possible.

North Yakima, Wash. J. B. RAMAGE, Sec.

We have decided to hold our annual beekeepers' meeting January 7, 1913, in the Courthouse, Canandaigua, N. Y. A program is being prepared for the occasion. We hope some of the Seneca Co. Beekeepers' Society will meet with us.

Naples, N. Y. F. GREINER.

THE INDIANA BRANCH MEETING, TO BE HELD IN THE PALM ROOM, CLAYPOOL HOTEL, INDIANAPOLIS, JAN. 24.

The foul-brood conditions in Indiana—what has been accomplished, and what we expect to accomplish in eradicating it or checking it in Indiana.—C. H. Baldwin, State Entomologist, assisted by B. F. Kindig, of Elkhart, and others.

The outlook for Indiana honey production, and developing honey resources.—D. W. Erbaugh, Ernest R. Root, and others.

Marketing Indiana honey.—Extracted, John Bull, Valparaiso; Comb, Geo. W. Williams, Mrs. Proper, and others.

Co-operation and Organization, E. B. Tyrrell, Detroit, Sec. National Association.

We have invited Geo. DeMuth, Dr. Phillips, C. P. Dadant, and fully expect some of them to attend. We are expecting a live meeting. We are making a special effort to develop more fully Indiana honey resources. We are realizing that Indiana buys carload after carload of honey every year that is really inferior to our own product.

We want every Indiana beekeeper who can do so to confer with us and remedy this condition as far as possible. When we can have the honey for the gathering, and a market at our doors, there is no excuse for importing any honey at all. Let's get together and furnish it ourselves.

MASON J. NIBLACK, Pres.
GEO. W. WILLIAMS, Sec., Redkey, Ind.

PROGRAM OF NATIONAL BEEKEEPERS' ASSOCIATION MEETING TO BE HELD AT CINCINNATI, FEBRUARY 12 AND 13.

At 10 A. M., the 12th, the meeting will be called to order and the proper committees appointed, including the committee on credentials. Meeting will then adjourn to enable the delegates to file their credentials with this committee.

At 1 P. M. the meeting will again be called to order, when the regular business will be taken up by the delegates. This meeting will be open to all members, but the voting can be done only by the regularly elected delegates.

At 7 P. M. the meeting will be called for a general program, in which all visitors will take part.

At 8 A. M., the 13th, the delegates will again take up the business matters; and should they be

able to conclude their business before noon, the rest of the time will be taken up with a general program.

At 1 P. M. there will begin another general meeting of all present.

Headquarters arranged for us by the Cincinnati Chamber of Commerce, and list of hotels and their rates will be given in full in the February bee journals.

E. B. TYRRELL, Sec.

FOURTH ANNUAL CONVENTION OF THE OHIO STATE BEEKEEPERS' ASSOCIATION, TUESDAY AND WEDNESDAY, JANUARY 14, 15, 1913, TOWNSEND HALL, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.

Report of Secretary; Report of Treasurer; President's Address.

Report of Chief Inspector of Apiaries.

Result of Apiary Inspection in Hamilton County, Fred W. Muth.

With the Apiary Exhibit at County Fairs, Glenwood Beard.

Agriculture at the University, Prof. J. S. Hine, Ohio State University.

Address—Organization, E. B. Tyrrell, Secretary National Beekeepers' Association.

Address—Education in Beekeeping, C. P. Dadant, Editor *American Bee Journal*.

Ohio Apiculture—Impressions of a Farmers' Institute Lecturer, Prof. W. A. Matheny, Ohio University.

Florida Beekeeping, J. E. Marchant.

My Experience with European Foul Brood, B. J. Holden.

Queen Rearing, J. C. Mosgrove.

Wax Rendering, H. H. Root.

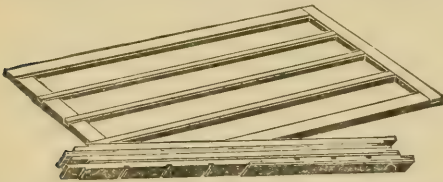
Production of Comb Honey, A. A. Doenges.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

HOTBED SASH.

The time is at hand when many are preparing for winter or early spring vegetables. If you are interested we would be pleased to send you a copy of our booklet, "How to Make and Run a Hotbed."



We are also prepared to furnish hotbed sash made of cypress, the everlasting wood, either K. D. or put together without or with the glass at the following prices:

One sash in flat, no glass. \$.90
Five sash in flat, no glass. 4.25
Ten sash in flat, no glass. 8.00
Put together, 10 cts. each extra; painted, 10 cts. each for each coat of paint. Glazed with 8x10 glass, \$1.10 each extra. This makes the price in lots of ten, put up, glazed and painted two coats of paint, \$2.20 each; or without the paint, at \$2.00. As regularly furnished, the sash are grooved for glass to be butted; but we also furnish at the same price, when specified, rabbeted sash to allow glass to be lapped and puttied in.

1913 EDITION OF OUR CATALOG.

We shall be somewhat later than usual with the new edition of our catalog, as we have been delayed in its preparation. It will not be completed ready for mailing much before the first of February. There are not many changes to record.

A new Peterson capping-melter will take the place of the Root melter which we have listed several years.

The price of extractors will be somewhat advanced because of increased expense involved in some new features. While the comb-pockets as we have made them for a number of years have in most cases proved of sufficient strength, some have complained

that they give way with hard usage. We have devised an entirely new pocket, only slightly heavier, but much stronger, from which the wire cloth may be removed for cleaning. The cage is made of sheet steel stampings locked together with ends of bars clinched over, and wire braces vertical and cornerwise. Then all is coated with tin, securely soldering all joints, and making a smooth surface for cleaning, and to prevent clogging with honey.

The price of the two-frame Cowan extractor is advanced 50 cts. each. The four-frame are marked up \$2.00 each, and the six and eight frame machines \$3.00 each.

BEESEX IN BAGS.

According to a recent ruling, beeswax shipped in bags, even though they are good strong ones or double, must pay fifty per cent more freight than if shipped in boxes or barrels. This applies on shipments from the far West. We have not learned yet how wide a section of country is affected by this ruling. It is, however, the direct result of so many careless shippers using bags for shipping wax which were too light or otherwise unfit for the purpose. As a consequence of wax lost in transit the railroads have had to pay in claims for such losses, and are now undertaking to avoid them by raising the rate. If shippers are not more careful in making sure that boxes and barrels are securely nailed or hooped, there is likely to be a further advance in rate on other styles of packages. Good strong bags are much more secure for shipping wax than boxes, as well as lighter; and if only such had been used this discrimination against them could not have come about. It is a great pity that careful shippers must suffer this discrimination because of the careless or thoughtless work of those who have used bags of inadequate strength.

PARCELS POST.

With the date of this issue is inaugurated the new parcels-post arrangement enacted last summer in Washington. The regulations provide that each parcel must bear the name and address of the sender as well as the address to which it is sent. The postage must be paid by special parcel-post stamps affixed. If ordinary stamps are used, the parcel will be held as though not prepaid. Printed matter, now provided under third-class mail, is not admitted to the parcels-post privilege. The size of the parcel is limited to six feet combined girth and length, and the weight in each parcel must not exceed eleven pounds. The rates of postage to be paid depend on the distance to which the parcel is sent. For delivery through the local or city postoffice: 1st lb., 5c; each extra lb., 1c; 11 lbs., 15c.

	1st lb.	Each extra lb.	11 lbs.
Within first 50-mile zone	.5	.3	.35
Within second 150-mile zone	.6	.4	.46
Within third 300-mile zone	.7	.5	.57
Within fourth 600-mile zone	.8	.6	.68
Within fifth 1000-mile zone	.9	.7	.79
Within sixth 1400-mile zone	1.0	.9	1.00
Within seventh 1800-mile zone	1.1	1.0	1.11
Within eighth zone	1.2	1.2	1.32

For the longest distances this is a reduction from the old rate of 16 cts. a pound to 12 cts., and an increase of the limit of the weight from 4 to 11 pounds. For parcels weighing $\frac{1}{4}$ lb. or less the rate is 1 ct. per ounce; over $\frac{1}{4}$ lb., and fractions of a pound, go as one pound. Up to now it has made no difference where goods were ordered from if sent by mail, as the rate was uniform. Hereafter, the shorter the distance the less the cost within certain limits. Fuller particulars in our new catalog.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0121, 2 $\frac{1}{4}$ x10-inch heavy hexagonal brood mill, An old-style Dunham machine without cam adjustment; in rather poor condition. Price \$8.00.

No. 0139, 2 $\frac{1}{2}$ x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2 $\frac{1}{2}$ x6 hexagonal thin-super mill, in very good condition. Price \$14.00.

- No. 0142, 2½ x 6 hexagonal thin-super mill in fair shape. Price \$10.00.
- No. 0151, 2½ x 6 hexagonal cell extra thin-super mill, one bad cell, otherwise in good condition. Price \$12.00.
- No. 0152, 2½ x 6 hexagonal thin-super mill, extra good for regular-width super foundation. Price \$12.00.
- No. 0153, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.
- No. 0154, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.
- No. 0156, 2½ x 6 extra-thin-super mill, fair. Price \$10.00.
- No. 0157, 2½ x 6 thin-super mill, in good condition. Price \$12.00.
- No. 0160, 2½ x 6 hexagonal thin-super mill, in good condition. Price \$12.00.
- No. 0164, 2½ x 6 hexagonal thin-super mill in fair condition. Price \$10.00.
- No. 0165, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.
- No. 0166, 2½ x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.
- No. 0167, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.
- No. 0176, 2½ x 6 extra-thin-super mill in fair condition. Price \$12.00.
- No. 0180, 2½ x 6 hexagonal thin-super mill, in fair condition. Price \$10.00.
- No. 0182, 2½ x 6 hexagonal thin-super mill, very good condition. Price \$20.00.
- No. 0183, 2½ x 6 hexagonal thin-super mill, very good condition. Price \$14.00.
- No. 0187, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price \$14.00.
- No. 0191, 2 x 10 round-cell Pelham mill in good condition for this kind of mill. The bases of the cells are not natural shape, but the walls are regular. Price \$7.00. Sample mailed free if interested.
- No. 0192, 2½ x 10 hexagonal medium-brood mill; extra good condition, nearly new. Price \$20.00.
- No. 0193, 2½ x 10 hexagonal medium-brood mill; very good condition. Price \$18.00.
- No. 0194, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$18.00.
- No. 0195, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$18.00.
- No. 0196, 2½ x 10 hexagonal medium-brood mill in very good condition; nearly new. Price \$20.00.
- No. 0197, 2½ x 10 hexagonal medium-brood mill in very good condition. Price \$20.00.
- No. 0198, 2½ x 10 hexagonal medium-brood mill in very good condition. Price \$20.00.
- No. 0199, 2½ x 10 hexagonal medium-brood mill in very good condition. Price \$20.00.
- No. 0200, 2½ x 10 hexagonal medium-brood mill in good condition. Price \$18.00.

SPECIAL NOTICES

A. I. ROOT

We are glad to see the Planet tools for gardening advertised in our columns for the coming year. Almost as far back as I can remember, the makers have kept up to date with the best and most labor-saving tools, not only for the home gardener, but for the market gardener and farmer as well.

THAT "ADDRESSED POSTAL CARD."

I fear the good friends are forgetting what I have repeatedly said about an *addressed* postal card, where an answer is expected or asked for; I don't want stamps or stamped envelopes. I don't want to be obliged to do any thing more than just to answer as well as I can without any of the customary preliminaries. Some of you have sent me questions about Florida to be answered by "yes" or "no." Very few questions can be answered in this way safely. While there are so many conflicting differences of opinion in regard to Florida, I earnestly advise making a short trip here to see for yourself before selling out to come down here, especially with a family. Some of you seem to think I am just "loafing around" down here. Bless you, I never was busier (and happier) in my life. Now send on your letters, as many as you like, but don't forget the *addressed* postal if you want an answer.—A. I. R.

PUBLICATIONS ON
BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet, giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- 3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- 4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- 8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- 9 **How to Keep Bees.** A book of 328 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 **The A B C of Bee Culture.** A complete encyclopedia of bees, of 576 pages, fully illustrated, \$1.50 postpaid; half leather, \$2.
- 11 **Cleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- 12 **Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
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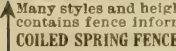
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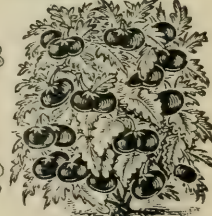
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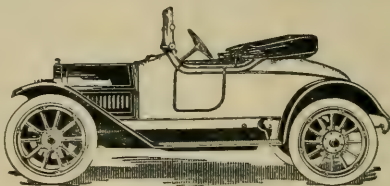
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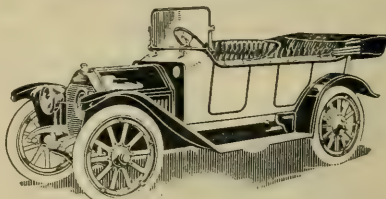
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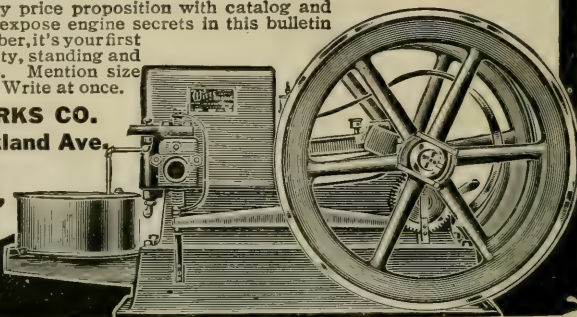
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Cleanings in Bee Culture

JAN 20 1913
Agricultural
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VOL. XLI. JAN. 15, 1913, NO. 2

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THIS is the title of a neatly printed, illustrated booklet, the second edition of which has just been published. Each operation in the process of extracted-honey production is explained in detail, with photographic reproductions and drawings to make the text more plain. Beginning with the chapter on "Preparing Colonies for the Honey-flow," the booklet concludes with a description of "Pack-ages for Extracted Honey."

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the

wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8; beeswax, 30.

Boston, Jan. 8.

BLAKE-LEE CO.

CHICAGO.—Sales dragged somewhat during the latter part of December, and so far this month; yet the market is in good shape, and there is no particular change in values.

Chicago, Jan. 6.

R. A. BURNETT & CO.

ZANESVILLE.—The demand for honey is not quite so brisk, which is not strange in view of the holiday season just over. Stocks are about sufficient to take care of present needs. Best white comb goes to the retail grocery trade at 18 to 19. In a jobbing way prices would be a cent or two lower. Best white extracted in 60-lb. cans is quoted at 10 cts. Producers receive for beeswax 30 cts. in trade, 28 in cash.

Zanesville, Jan. 8.

E. W. PEIRCE.

ST. LOUIS.—The trade in honey is still very moderate, and we can not report any improvement in the demand. We quote fancy white comb honey at 16 to 17; No. 2, 15; light amber, 12 to 14; dark, 9 to 11. Considerable honey is sold by the crate for fancy Colorado and other western honey at \$3.75; No. 2 at \$3.50; amber color, \$2.75 to \$3.25, according to quality; dark, \$2.40 to \$2.50. Extracted honey is quotable as follows: Southern light amber, in barrels and half-barrels, 7 cents; dark, 6 to $6\frac{1}{2}$; in five-gallon cans at half a cent higher. White clover California, 9 to $9\frac{1}{2}$; light amber, $8\frac{1}{2}$. Beeswax is in good demand at 30 for prime; inferior and impure sells for less.

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Gleanings in Bee Culture

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To those who buy now for next season, sending remittance with the order during the month of January subject to the conditions named below, we allow 3 per cent discount.

This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

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THE A. I. ROOT CO., MEDINA, O.

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CHAS. ESCHELBACH.

Cleveland, O., Sept. 24.

The southern-bred queen you sent me in May was put in a two-frame nucleus, and to date I have taken 80 sections from them. I think she will pass the 100 mark easily.

Kimberly, Ida., Aug. 30. EVERETT G. HAGER.

My bees have filled a second story with combs and honey, and my best colonies have filled three supers of the finest sections that were ever seen in this part of the country—all pure alfalfa honey.

Willows, Cal., Sept. 26. THOS. C. DAVIS.

I have been noting results where your queens have been used to resist European foul brood during my inspection work; in fact, I have tested a few in my own yard, and find them equal to the best in resisting foul brood, and I have good reason to believe that your stock has longer life than the lighter-colored strains of Italians.

Wooler, Ont., Oct. 1. WARRINGTON SCOTT.

Long Distance Banking

In selecting this strong bank as a depository for your funds it does not matter whether your home is in Medina County or many miles away.

You can deposit and withdraw either small or large sums by mail with entire safety, and thus regardless of where you live you have at your disposal the facilities of this bank.

Savings accounts from \$1.00 earn 4 per cent interest.

Write for further information.

The SAVINGS DEPOSIT BANK COMPANY Medina, Ohio

ASSETS OVER ONE MILLION DOLLARS.

A. T. SPITZER, Pres.
E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

THE BANK THAT PAYS 4 PER CENT

Honey reports continued from page 2.

INDIANAPOLIS.—Fancy white sells at 18 in ten-case lots; No. 1 white 1 ct. less; amber comb is in slow demand and at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. There is an excessive demand for comb honey, but very little is now being offered by producers. Beeswax is in good demand, and producers are being paid 30 cts.
Indianapolis, Jan. 8. WALTER S. POWDER.

ALBANY.—The honey market is, so to speak, "in statu quo"; light receipts and light demand, especially if not in good condition. There has been much white comb, 15 to 16; buckwheat, 13 to 14, if in good condition; otherwise prices from 10 to 12, as one can strike a customer. Extracted stock is light, 9. Beeswax, 30 to 32.
19. Beeswax, 34 to 32.
Albany, Jan. 8. H. R. WRIGHT.

BUFFALO.—The demand for all kinds of honey is pretty slow of late. The amount in the market is small for this time of the year. We think most of it is shipped in from the country. A good demand for a short time would cause prices to advance a little. We could get a big price for buckwheat if we could get it—none arriving. We quote fancy white comb, 17 to 18; No. 1 ditto, 16 to 17; No. 2 ditto, 12 to 14; amber, 10 to 12; white-clover extracted, 9 to 10; amber extracted, 7½ to 8½; dark extracted, 7½ to 8. Beeswax, 28 to 30.
Buffalo, Jan. 4. W. C. TOWNSEND.

GET TOP NOTCH PRICES **BY** USING LEWIS SECTIONS
FOR YOUR HONEY AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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Twenty-five cents per agate line, flat. Fourteen lines to the inch.

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Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

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Cash-in-advance discount, 5 per cent.

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Bills payable monthly.

No medical or objectionable advertising accepted.

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Columns to page, 2 (regular magazine page).

Forms close 10th and 25th of each month.

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Cold facts showed heavy winter losses a year ago. We can look for losses this winter, too.

How about NEXT winter? What are you doing about it? We suggest the Buckeye Beehive as the remedy. One severe winter will save more than the cost of the hive. You can buy them cheaper in January than June. . . . Write us about it.

M. H. HUNT & SON, LANSING, MICH.
141 CONDIT STREET

Save 50% on LEWIS BEEWARE

We will sacrifice for cash a large stock of Lewis Beeware recently purchased from the Bankruptcy Court. Send for itemized list.

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BEE CULTURE

The only cyclopedia on bees, 586 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$1.50 postpaid; money refunded if unsatisfactory. Catalog of supplies and sample copy of our semi-monthly magazine, *Gleanings in Bee Culture*, free if you mention this paper.

Gleanings in Bee Culture, Medina, Ohio.

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We keep in stock several styles of honey-jars—No. 25 heavy flint glass, \$4.75 gross.

Write for price on comb or extracted honey. Catalog of every thing a beekeeper uses, free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Aplaries, Glen Cove, L. I.



Established 1885 WE CARRY AN UP-TO-DATE LINE OF BEEKEEPERS' SUPPLIES

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle the best make of goods for the beekeeper. . . Freight facilities good. Let us hear from you.

JOHN NEBEL & SON SUPPLY CO., HIGH HILL, MO.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

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G. B. Lewis Company, Watertown, Wis.

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"The Down Town Hotel" COSMOPOLITAN HOTEL

West Broadway and Chambers Street

Within easy access of all subway and elevated railway lines in the city

ROOMS, \$1.00 PER DAY AND UP
EUROPEAN PLAN

First Class Restaurant and Lunch Room

EXCELLENT SERVICE—FINE MUSIC
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"In the Heart of New York" HERALD SQUARE HOTEL

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One block from New Penn. R. R. Station. Baggage free to and from this station.

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Absolutely Fire Proof—All Modern Improvements

Telephone in Every Room

Rooms with detached bath, \$1.50 per day up.

Rooms with private bath, \$2.00 per day up.

LADIES' and GENTLEMEN'S RESTAURANT.

Gentleman's Cafe. Unexcelled Service.

Prices Moderate.

C. F. WILDEY & SON, Proprietors



“If Goods are Wanted Quick, Send to Pouder.”

Many of my friends are calling my attention to the luxuriant sod of white clover which now covers our central States; and this feature, with the fact that bees went into winter quarters strong and with an abundance of wholesome stores, would indicate that this is going to be a piping good season for the wideawake bee-keeper. With these conditions in view I have, as usual, prepared myself with a very complete stock of the finest and latest equipments for those who are interested in the bee industry. Hives in all their different patterns and combinations; the Buckeye double-walled hive, Danzenbaker hives, regular dovetailed hives, and all equipped with supers of any design that may best suit your requirements. Sections, comb foundation, smokers, veils, and honey and wax extractors—everything required in the apiary; and the goods are here, so that you get prompt returns after placing your order here. To those who have not dealt here during the past twenty-four years I wish to explain that the goods handled are manufactured by The A. I. Root Co., and the kind that are in use by the most progressive everywhere, and my prices are the factory schedule, whether you require one hive or one hundred. If you've planned to place your order elsewhere I'd be grateful if you would submit a list of goods wanted for an estimate, and this would place you under no obligations whatever.

Many of the articles described in my catalog can be delivered by parcels post, and I am devoting special care to this line of business.

If you are in need of more finest honey for local demands I can supply you. Ask for my monthly quotations of the Indianapolis honey market.

I can use more beeswax on a cash or trade basis.

I should like to place my catalog in your hands.

Walter S. Pouder, Indianapolis, Ind.

859 Massachusetts Avenue

Tempus Fugit!

Two Latin words—written hundreds of times in our school-days—are especially applicable to-day. **TIME FLIES!** Another new year is fairly started. Days, weeks, months are fast speeding away. Almost before we realize it, spring and bee time will be here.

Most encouraging reports are being received, and indicate a great yield of clover honey the coming season. Surely now, if ever, the beekeeper should be prepared. Why not secure now the supplies you will probably need, and have your hives made up and painted, and all appliances ready before the rush of spring work is on? Remember, too, the January three per cent discount, which, on a fair-sized order, will more than pay your freight.

Of course, you will want **ROOT'S GOODS**, the time-tried and true, and shipment from "**OHIO'S BEE CENTER.**" Ask for a catalog if you haven't one.

E. W. Peirce, Zanesville, O.
136 W. Main St.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for discounts—we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

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25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLachlen Building, Corner
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The A. I. Root Co

BEE-KEEPERS. ATTENTION!

If you have any extracted or comb honey to offer, also beeswax, send us samples of quality; state quantities and how packed. We pay the highest market price for the same.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street

Boston New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. . . . Send for catalog

H. H. JEPSON

182 Friend Street - BOSTON, MASS.

When Ordering Supplies

remember we carry a full stock and sell at the lowest Catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

The A B C of Bee Culture

A complete treatise on the subject; fully illustrated. A text-book for the beginner and advanced bee-keeper. Cloth-bound, \$1.50 postpaid; leather edition, \$2.50.

THE A. I. ROOT CO., Medina, Ohio.

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

LEARN BEEKEEPING from the Beginning

"First Lessons In Beekeeping" and the . . . **\$1.00**
American Bee Journal, one year, Both for Only

"First Lessons In Beekeeping" is a 190-page book telling all that the beginner need know. . . . It has an attractive paper cover, and many illustrations.

"Doolittle's Scientific Queen-rearing," and the . . . **\$1.00**
American Bee Journal, one year, Both for Only

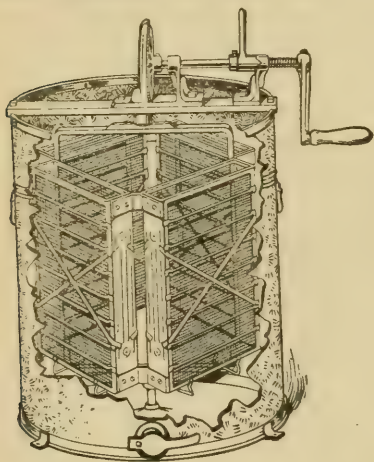
Doolittle's "Scientific Queen-rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen bees in perfect accord with Nature's way. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions.

The beginner will want "First Lessons;" the older beekeeper should have "Scientific Queen-rearing." You will not regret it if you send your \$1.00 now and get either one of these books with the JOURNAL, as the JOURNAL itself is worth more than the total cost.

AMERICAN BEE JOURNAL, . . . HAMILTON, ILLINOIS

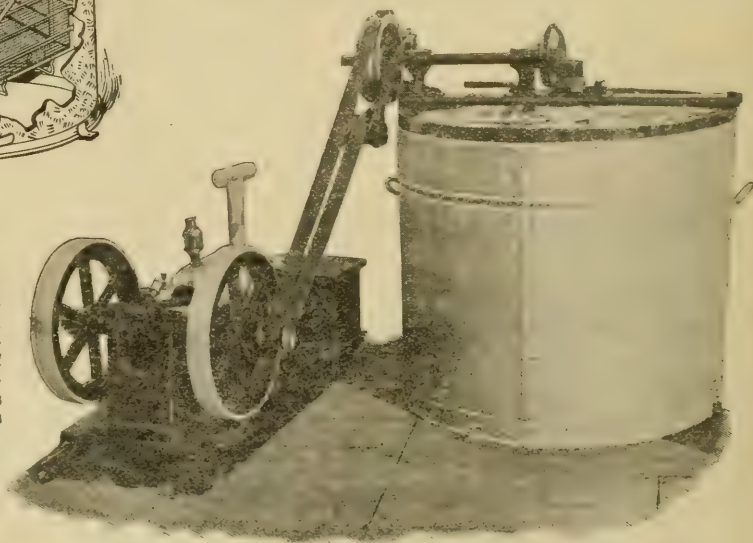
The Use of Root's

With the increased interest in and demand for the better grades of extracted honey, all beekeepers, large and small, are interested in honey-extractors. The time was when the small beekeeper thought it didn't pay to produce extracted honey, and, as a consequence, he lost quite a large per cent of the actual profit his bees might have made him. For instance, during the past summer, with the remarkable honey-flow there was in many localities, even in an apiary of ten colonies an extractor might have been made to pay for itself in a single day. Record honey-flows like this demand a rapid handling of the combs if the bees are to take advantage of the flow of nectar. They can not make new combs fast enough to store the nectar that must be gathered within a few hours, or it is lost. If the filled combs can be taken from a hive, extracted, and replaced at once, they will be filled again with astonishing rapidity, and hundreds of pounds of honey harvested that would otherwise have been lost.



A one-horse-power air-cooled gasoline-engine connected to an eight-frame extractor. For economy of floor-space and convenience of the levers this arrangement is perhaps the best.

For the small apiary the hand-run extractors are usually sufficient; but where any number of colonies are kept from which to produce honey for the market, the power-equipped extractors are by far to be preferred. Even the first cost is very moderate; and when the wonderful work done by these machines is taken into consideration it will readily be seen that the purchase of such a machine is an investment which yields the beekeeper a handsome profit.



The popularity of these machines is perhaps best estimated by reading letters received from a few of our customers who are using them, and from the fact that our trade in them is constantly increasing. We now have in the process of making, twelve Root Automatic Extractors for one beekeeper in the West, who has 2000 colonies of bees, and maintains 15 yards. Certainly this large beekeeper would not make such an investment were he not sure of results.

Honey Extractors

Our extractors are carefully made from selected materials, and with ordinary usage will last for years. All power machines are fully equipped ready for running. We make extractors in all sizes from two to eight frame, and the power machines in four, six, and eight frame size, or larger, if ordered special. The prices range from \$9.50 for a small hand-run machine to \$52 for an eight-frame power-equipped machine. A one-horse-power air-cooled engine is \$60, and a 1¾ horse-power water-cooled, \$65.

These machines are run by a one-horse-power gasoline-engine which may be put to so many other good uses about the place you will wonder how you ever got along without it.

A word about the power extractor I purchased from you through H. L. Jones, of Goodna. I found it to work very satisfactorily, and it will do all it is claimed to do, and more. I use the gasoline-engine for several purposes besides driving the eight-frame extractor, such as driving the washing-machine for the lady of the house, and corn cracking and grinding. I consider it one of the best speculations I made in connection with the apiary.

Pittsworth, Queensland.

F. C. GOLDER.

Yours of the 16th, also the brake-band for power-extractor, came to hand. Thanks for sending it so promptly. This is my second season with the power extractor. I would not be without it now, even if I had only fifty colonies.

DAVID RUNNING.

Grindstone City, Mich., July 19, 1910.

Uncapping Knife

Just a word about the new steam uncapping knife which seems to go quite naturally with the power extractors. No more perfect device has ever been put into the hands of beekeepers, and one who has any considerable amount of uncapping to do should not be another season without this knife. Steam may be generated for this in a half-gallon can over a single-burner oil-stove. We furnish the knife complete with the hose for \$5.00, and with boiler for \$6.00.

As regards the steam uncapping-knife, I think it a grand investment, so far ahead of the cold knife that it will pay any ordinary beekeeper to have the outfit. I purchased an outfit one year ago for my home yard, and thought so much of it that I got another this year for my outyard.

WM. ELLIOTT.

Adelaide, Ont., September 28, 1911.

I received the extractor I ordered of you some time ago. It arrived in good shape. I set it up and extracted 143 quarts of honey, and sold it at 35 cts. a quart. The extractor is just fine—does the work completely.

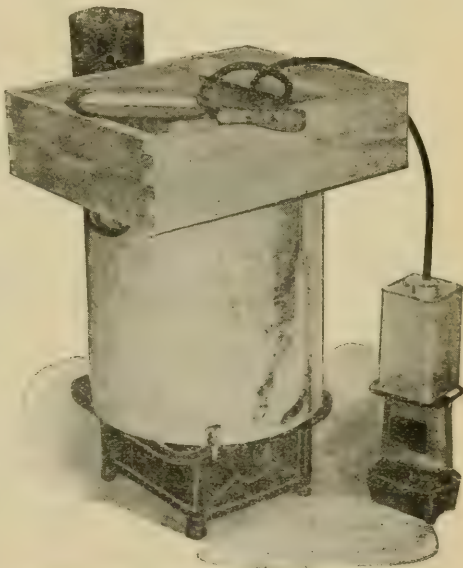
F. D. KING.

Athens, Ohio, Aug. 16, 1912.

The engine I got of you this spring has done fine. We ran it all fall, and never had any trouble at all.

V. V. DEXTER.

North Yakima, Wash., Jan. 18, 1911.



Root's Steam Uncapping-knife.—A half-gallon can over a single flat-wick oil-stove furnishes the steam necessary.

The A. I. Root Co., Medina, O.

NEW STOCK

The A. I. Root Co., of Sy
are constantly receivi
goods, and now
good time to
order to them
for the next
you are
early

We are now receiv-
ing goods for next sea-
son, and it would be a good
time for you to do likewise.
Send in your list for supplies
that you will need, and quotations
will be mailed you. Catalog for 1913
is not yet out, but you can use 1912. If
you have no catalog, one will be mailed
on request.

THE A. I. ROOT CO., SYRACUSE, N. Y.

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One Hundred Tons of BEESWAX

For Our 35th Season's Run of
DADANT'S FOUNDATION

Get our prices before selling your wax. Get our prices before
buying your foundation and supplies. No shipment too large.
No shipment too small. Send for our prices on working wax
into foundation, also catalog of Supplies. Write today.

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For large or small orchards, market gardens, potato farms, grain, cotton, tobacco, home and garden work, poultry plants, whitewashing, cleaning, cold water painting, etc. From **Bucket, Knapsack, and Barrel Sprayers to Tractor and 50, 100, 150 and 250 gallon Power Sprayers**—complete or in part to build up. Sprayers already in use. 40 combinations.

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They have outside pumps, no corrosion. Unit sprayers, so you can build bigger when necessary. Ask your dealer to show them and write for new booklet, "Spraying Vines, Trees and Bushes." We also make full line potato machines, garden tools, etc.

Bateman Mfg Co.
Box 1204
Glenloch, N. J.



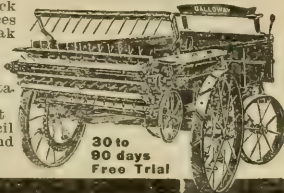
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Men or more in every township who answer this advertisement will make big cash savings on the finest Manure Spreader constructed. \$39.50 up. Get a

GALLOWAY

Save \$25 to \$50 by direct-with-factory dealing on my special plan for

1913. Write me quick for catalog, prices and book. "A Streak of Gold." Wm. Galloway, Pres.
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Stocks on hand at Kansas City, Council Bluffs, St. Paul and Chicago. Prompt shipments.



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Get Free Book. Banish disease and blight—kill insects. Use sprayer that does most work. **Use Brown's Auto Spray No. 1**. Has Auto Pop Nozzle. Most powerful, efficient, economical for light work. 40 sizes and styles—hand and power outfits. Brown's Non-Clog Atomic Nozzle for larger sprayers.

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THE BEST LIGHT



MAKES and burns its own gas. Produces 100 candle power light—brighter than electricity or acetylene—cheaper than kerosene. No dirt. No grease. No odor. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
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FROM FACTORY DIRECT TO FARM



26-inch Hog Fence,....14c.
41-inch Farm Fence,....21c.
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80-rod spool Barb Wire, \$1.55

Many styles and heights. Our large Free Catalog contains fence information you should have.

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Get It From the Factory Direct



KITSELMAN FENCE
Made from thoroughly Galvanized Open Hearth steel wire. Our free Catalog shows 100 styles and heights of hog, farm and poultry fence at from

12 Cents a Rod Up
Sold on 30 days free trial. If not satisfied return it at our expense and we will refund your money. 80-rod spool of Ideal galvanized **BARBED WIRE \$1.55**
Write today for large Free Catalogue.

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Save \$25 to \$40 on a BUGGY

Phelps' Free Book shows largest selection of high grade buggies in America. 140 styles all sold direct to user. 167,000 now in use. Full and complete line of Harness.

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Write Phelps a postal or letter tonight. Postage on free book paid. Don't pay dealers high price—pocket that profit yourself.

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Gets twice the results with same labor and fluid. Flat or round, fine or coarse sprays from same nozzle. Ten styles. For trees, potatoes, gardens, whitewashing, etc. Agents Wanted. Booklet free.

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NO MORE RABBITS If you want a cheap, simple, absolutely sure way to keep EVERY Rabbit and EVERY Borer out of your orchard, paint your trees with "SULFOCID" the new concentrated sulphur compound. Simple to prepare. Cheaply and easily applied. One application will last for six months. Absolutely certain. "SULFOCID" will solve the rabbit problem. Write Today for booklet, "SULFOCID—Sure Protection from Rabbits and Borers." Address P. G. Pratt Co., 50 Church St., N.Y. City.

NO MORE BORERS

BROWN FENCE

BIG BARGAINS
in Fence. 150 styles—13 cents per rod up. We pay freight. Send for bargain fence book and sample to test—ALL FREE.

THE BROWN FENCE & WIRE COMPANY
DEPT. 91 CLEVELAND, OHIO

Get the Added Profits

that a thriving chicken and egg business will bring to you in 1913—the money-making year of the poultry business. Fits in well with bee-keeping. Find out about the latest methods that mean sure results—biggest profits. Get our handsome free 214-page illustrated book of "Profitable Poultry and Egg Production." It tells all about

CYPHERS INCUBATORS and Brooders

and gives practical advice valuable to beginners and old timers. Here are some of the chapter headings. They prove what helpful and valuable experiences and suggestions the book contains: Chapter I—What is Possible in Poultry Meat Production. Chapter II—What Can Be Done in the Way of Egg Production. Chapter III—Deep-Litter Feeding Experiments of 1912. Chapter IV—Quick Maturity in General Purpose Fowls. Chapter V—Age and Weights of Chickens for Table Use. Chapter VI—How to Establish Profitable Egg-Yield Flocks. Chapter VII—Today's Best Chance in the Poultry Business. Chapter VIII—Small-Scale Poultry Keeping on a Practical Basis.

The Cyphers Company Year Book also tells about Cyphers Company Free Bulletin and Personal Letter Service. Tells how you can secure it as a constant aid in money-making poultry raising. Send for the book today.

Cyphers Incubator Co.

Dept. 69
Buffalo, N. Y.

New York City, Boston, Mass.
Chicago, Ill. Kansas City, Mo.
Oakland, Cal. London, Eng.



STANDARD
CYPHERS INCUBATOR.
Fire Proofed-Insurable.

A FARMER'S GARDEN

IS without real serious meaning to many thousand farmers because they think it is too hard work or it is not convenient to work a horse. So many farmers fail to understand what truly wonderful possibilities there are in modern hand tools.

IRON AGE Wheel Hoes and Drills

do all of the sowing, hoeing, cultivating, weeding, furrowing, ridding, etc., in any garden, with better results, far less work and some real pleasure for the operator. 38 or more combinations at \$9.50 to \$12.00. Ask your dealer about them and write us for new booklet, "Gardening with Modern Tools" also copy of our paper "Iron Age Farm and Garden News"—both are free.

BATEMAN MFG. CO.
Box 1202 Grenloch, N. J.



APPLE GROWING

The healthier the tree, the better the fruit. The longer trees are sprayed with "SCALECIDE" the more beautiful, healthful and fruitful they become. "SCALECIDE" is the acknowledged leader of all soluble oils—the only one containing distinct fungicidal properties. "SCALECIDE" will positively kill all soft-bodied sucking insects without injury to the tree. Let us prove these statements. Send today for free booklet "SCALECIDE—the Tree Saver." Address B. G. PRATT CO., Mfg. Chemists, 50 Church St., N. Y. City.

Dept. 6.

JOHNSON Wants Fruit Growers



to send for his new poultry book. It is the greatest ever printed. Home written and home printed. Full of common sense about chicken-raising for profit. Tells a lot of things about incubators and poultry that will show you the quickest path to biggest success. Tells how Johnson started with 65c and built the greatest business of its kind in the world. Tells why more than 400,000

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30 to 90
Days
FREE TRIAL
10 or 20 Years
Guarantee

Get the
Big
Free Book

PRICE
Less Than \$10

to have this book. It is free for a postal.

Write Postal Now

No other machine is made like the Old Trusty: 3 cases—inner case of 3/4 inch powder dry, California redwood. Covered with a casing of fireproof asbestos. Outer casing galvanized metal. Cold rolled copper tank, safety lamp and self regulator. Equipped with egg-tester, trays, Tyco's Thermometer and everything worth having in a machine—price less than \$10. Freight paid E. of Rockies; allowed that far if you live beyond. Address



JOHNSON—Incubator Man, Clay Center, Neb.

YOUR HENS YOUR FARM YOUR MONEY

The Story of 25 Years with Poultry and Farmers and Fanciers will help many Farmers get more eggs—better prices; make more and save more money; tell things few folks know on making money with hens. Find out about America's Largest Line of Incubators and Brooders, and get six poultry chapters written by Robert Essex himself—It's all in our Free Catalog—Write today. Address Robert Essex Incubator Co., 81 Henry St., Buffalo, N. Y.



Latest Book "Profitable Poultry,"

Finest published, 128 pages practical facts, 130 beautiful pictures. Tells how to breed, hatch, feed and market by latest improved methods. All about world's famous Runner Ducks and 52 other pure-bred varieties. This 50-cent book and lowest price list of best fowls, eggs, incubators, supplies, etc., only 5 cents. BERRY'S POULTRY FARM, Box 97, Clarinda, Iowa

PRINTING

The GRAY PRINTING COMPANY Fostoria, O.



Bigger Hatches With Only 1 Gal. Oil To Hatch—One Filling of Lamp!—

Get our new Free Book No. 100 on X-Ray Incubators and Brooders. Shipped direct from factory to you. No agents—no dealers. Guaranteed to please. Freight prepaid anywhere! The X-Ray is the one incubator today that's built on the right principle with the lamp underneath, in the center, and not on the side. This means perfect distribution of heat in the egg-chamber and no outside cold. We use a large oil tank holding four to eight quarts of oil—making only one filling of the lamp, but just four quarts are all that's needed for hatch. Old style machines have to be filled every day. The X-Ray saves both work and money! Heat is regulated by our patented automatic trip which cuts down flame at burner when egg chamber gets too hot—this is a big saving of oil. The ever successful

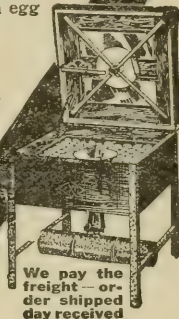
X-RAY INCUBATOR

has other exclusive and proven features that you will like. It opens from the top—has two double glass panels so you can see the thermometer at any time without letting in outside air on eggs. Ventilate or turn eggs by simply raising the lid. There are no sliding heavy drawers to break the eggs. X-Ray is heated to hatching temperature in just 15 minutes—others take 4 to 8 hours because of their old style principle. X-Ray is made of all genuine California redwood, covered completely with enamel, steel, beautiful rosewood finish, legs galvanized, strongly braced. Every X-Ray incubator fully guaranteed. X-Ray results are the biggest results.

Write Today For Free Book No. 100

Learn all about X-Ray construction—why X-Ray is entirely different and wonderfully better than any other. Read why women and all mere beginners have such big success every time with the X-Ray! Write today—this is very important news—worth money!

X-RAY INCUBATOR COMPANY, Wayne, Neb.



We pay the freight—order shipped day received

WRITE

Send me a postal right now. I want to send you the most remarkable World's Championship facts ever published—show you how to get into the prize-winning class, how to make more money at least expense. I'll quote you my sensational direct-from-factory price on the 6-time winner—the

World's Champion Belle City

—Less Than Losers Cost

I want to tell you how Belle City won in 10,000 hatch-contests year after year—facts about the winners, how they did it and how you can do it.

I'll give you 1, 2 or 3 months home test, 10 year guarantee, freight prepaid offer and my low price proposition. I'll send you all this information free if you just write me a postal now for World's Champion

hatching facts.—JIM ROHAN, Pres.
Belle City Incubator Co., Box 69 Racine, Wis.



We ship quick from St. Paul, Buffalo, Kansas City or Racine.



Miller's "Ideal"—the greatest hatcher that ever came out of a factory. You don't have to be an expert to run it.

able incubator. This year I'm going still further.

I'm Going to Pay the Freight—Give You An Unqualified Guarantee—Include Everything FREE.

When writing, tell me what size incubator you are interested in and I'll send you my **BIG ILLUSTRATED POULTRY BOOK FREE.** Describes Standard Bred Poultry, tells how to become successful and other valuable information. Easily worth \$1.00. Because it contains advertising, you get it FREE. Ask for copy. **J. W. MILLER CO., Box 48 Rockford, Illinois**

GET IT

Before buying any kind of an incubator, at any price, from any body, get my 1913 offer on the IDEAL. Last year I broke the record for low price on efficient, dependable incubator. This year I'm going still further.

You Can Earn a Good Living Raising Poultry

Cut down living expenses—raise poultry for your own use and for sale to neighbors. Thousands make money this way with

SUCCESSFUL INCUBATORS

SUCCESSFUL BROODERS

Life Producers—Life Preservers

Why don't you do the same? Learn how easy it is to start. Booklet "How to Raise 48 out of 50 chicks"—10c. Catalogue FREE. Write today. Address,

Des Moines Incubator Co., 190 Second St., Des Moines, Ia.



Greider's Fine Catalogue

and calendar of pure-bred poultry for 1913, large, many pages of poultry facts, 70 varieties illustrated and described. Incubators and brooders, low price of stock and eggs for hatching. A perfect guide to all poultry raisers. Send 10 cents today.

B. E. GREIDER, Box 65, Rheems, Pa.

MAKE HENS LAY

By feeding raw bone. Its egg-producing value is four times that of grain. Eggs more fertile, chicks more vigorous, broilers earlier, fowls heavier, profits larger.

MANN'S LATEST MODEL Bone Cutter

Cuts all bone with adhering meat and gristle. Never clogs. 10 Days' Free Trial. No money in advance, in advance.

Send Today for Free Book. F. W. Mann Co., Box 37, Milford, Mass.



20 Pkts. Northern Grown Seeds 10c

OLDS' SEEDS are planted every full gardener. To advertise our seeds we

LETTUCE,..... Good all the year round.
CABBAGE,..... Best early variety.
CARROT,..... The general favorite.
BEEF,..... Olds' best first early.
ONION,..... The best Red Wethersfield.
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WATERMELON,..... The leading melon.
PARSLEY,..... Just right for seasoning.
MUSKMELON,..... Gol-fish Rocky Ford.
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OLDS' CATALOGUE, an 88-page
 Potatoes, Field and Garden Seeds, Easiest



year by thousands of the most successful will mail the **20** packets named below for **10c**.

PUMPKIN,..... The best for pies.
RADISH,..... Early, tender and crisp.
SPINACH,..... Olds' Long Season.
TOMATO,..... Olds' best extra early.
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DIANTHUS,..... Best double pinks.
MIGNONETTE,..... Best and finest strain.
POPPY,..... Splendid double mixed.
ZINNIA,..... Olds' Superb Double Mixed.

book, tells the truth. Best varieties catalogue to order from. Mailed **FREE**.

L. L. OLDS SEED CO.

Madison, Wis. Drawer

Every Home Should Have a Berry Bed

One man made \$200 with berries in his yard. YOU can do likewise. Get your sets from **ALLEN**, largest grower of true-to-name strawberry plants. 28 years' experience. Allen's

Strawberry Book

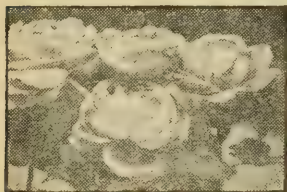
tells how to grow berries for profit. Has valuable information on small fruits. Sent **FREE** on request. Full line of small fruit plants, shrubs, privet, asparagus, etc. All shipments guaranteed fresh and vigorous. Allen's plants are best.

W. F. ALLEN

57 Market St. Salisbury, Md.



Roses, Plants, Seeds,



Bulbs, Vines, Shrubs, etc., by mail, postpaid. Safe arrival and satisfaction guaranteed. 59 years of fair dealing. Hundreds of carloads of **Fruit and Ornamental Trees** 1200 acres, 60 in hardy roses—none better grown. 47 green-

houses of **Palms, Ferns, Begonias, Geraniums, etc.** Immense stock of **Superb Cannas**, the queen of bedding plants. Large assortment of hardy **Perennial Plants**, which last for years.

168-Page Catalog FREE. Send for it To-day. The Storrs & Harrison Co., Box 135, Painesville, Ohio.

Great Crops of

Strawberries



FREE BOOK

and How to Grow Them

IS a beautifully illustrated book of expert information written by America's most successful strawberry grower. It gives the famous Kellogg sure-crop method and explains just how Pedigree Plants are grown on the great Kellogg plant farms in Michigan, Oregon and Idaho. Any man, woman, boy or girl, who reads this

book can grow big crops and get big prices. Strawberries yield more dollars per acre than any other crop. Our book tells the whole story. It's **FREE** to you. **R. M. Kellogg Co. Box 400, Three Rivers, Mich.**

GOOD SEEDS

BEST IN THE WORLD

Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Illinois



SCARFF'S FRUIT CATALOG

Fully describes the products of our 1100 acre nursery, fruit and seed farm. Over 25 years experience in growing heaviest bearing strains of strawberries, raspberries, currants, gooseberries, blackberries, dewberries, grapes and all kinds of fruit trees and shrubs. Also seed potatoes, rhubarb, horseradish, asparagus, etc. Send names and addresses of 50 fruit growers and get five currant bush free. Catalog free.

W. N. SCARFF, New Carlisle, Ohio

Bees Thrive and Owners Prosper

in the

San Joaquin Valley

California

Here is the beekeeper's opportunity. Conditions are just right for his business and there's a hungry market right at home. Great cities like San Francisco and Los Angeles make steady, profitable markets. And think of the thousands of pounds shipped to eastern markets.

The 200,000 people now in the San Joaquin Valley have only made a beginning in developing its marvelous agricultural resources. Over seven million acres of wonderful crop-producing soil are awaiting the men who will set them at work. Your dollars will have greater earning power here; your brain and muscle will count for more.

The best of it is that you can buy this land with water developed, or with water rights, at about \$125 an acre, on favorable terms. You can get quick results. Most of the land was wheat-fields or grazing land, and it is easily put into alfalfa, one of the best bee foods. You have the advantages of long summers, and then there is no time that you can not do out-of-doors work comfortably and profitably.

You will find good schools, good roads, telephones, rural delivery, electric light and power, trolleys, and a "get-together-and-help-each-other" spirit that makes the newcomer feel at home at once.

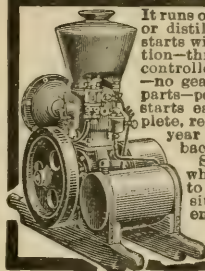
The Santa Fe has published a folder about the San Joaquin Valley which is full of information for the homeseeker. It gives the experiences of people who have taken up different lines of farming, and tells of the results they have secured.

Read the book; then see the country. It will cost but little. Go now, while work is slack. The Santa Fe runs low-fare homeseekers' excursions to California, and elsewhere southwest, on first and third Tuesday each month. Time on the road, only three days from Chicago. I will gladly send the San Joaquin Valley folder free and give you full information about trains and fares.

C. L. Seagraves

General Colonization Agent, A. T. & S. F.
Ry. 2120 Railway Exchange, Chicago

20 Reasons Why You Should Investigate the SANDOW Kerosene Stationary ENGINE



It runs on kerosene (coal oil), gasoline, alcohol or distillate without change of equipment—starts without cranking—runs in either direction—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—starts easily at 40 degrees below zero—complete, ready to run—children operate them—5-year ironclad guarantee—15-day money-back trial. Sizes 2 to 20 horsepower.

Send a postal today for free catalog, which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your county. (164)

Detroit Motor Car Supply Co.
72 Canton Ave., Detroit, Mich.

FERRY'S

The sower has no second chance. A good beginning is the only safe rule; put your faith in the best seeds you can buy. Ferry's have had the highest reputation for over 50 years. For sale everywhere. 1913 Catalogue free on request.

D. M. FERRY & CO., Detroit, Michigan

SEEDS

Hill's Evergreens Grow



All hardy stock—twice transplanted—root pruned. Protect buildings, stock, crops. Hill's Evergreen Book, illustrated in colors. Free. Write today. D. Hill Nursery Co., Inc., 246 Cedar St., Dundee, Ill. Evergreen Specialists

The A. I. Root Co.:

The three-frame nucleus shipped by you on Aug. 31 came safely this morning. The bees were in excellent condition, despite the extremely hot weather of Saturday and Sunday. By their aid I have strengthened a weak colony, with every prospect of being able to winter it successfully.

ANDREW J. MONTGOMERY.

Oak Park, Ill., Sept. 2.

The A. I. Root Co.:

Herewith I append my crop report. I had six colonies May 1, 1912; have taken 550 lbs. of comb honey, and increased to 12 colonies. Honey is mostly from poplar, alsike, and basswood—no white clover worth mentioning. If weather conditions are favorable next spring we shall get a great flow from white clover. It looks good now. I have sold nearly all my honey at 20 cts. I haven't enough to supply my customers. I forgot to mention in my report that my best colony produced 177 sections, nearly all fancy. Said colony has not swarmed since 1903.

EDWARD BLACKSTONE.

Cumberland, O., Aug. 26.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department cannot be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE.

No. 2 fall comb honey, \$2.50 per case of 24 sections. QUIRIN THE QUEEN-BREEDER, Bellevue, O.

Clover honey of finest quality, in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

HONEY-LABELS and other kinds in two colors, on gummed paper, 33 cents per 1000 up. Samples free. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—We offer broken comb honey in 65-pound tins at 10 cents per pound, f. o. b., Cincinnati. C. H. W. WEBER & Co., Cincinnati, O.

Finest extracted water-white alfalfa and amber alfalfa honey in 5, 10, and 60-lb. cans. Samples cents. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Delicious Michigan extracted honey in quantity and packages to suit. A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—Finest quality clover and clover-basswood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—The finest extracted honey I ever produced—gild-edged in every respect. Clover with a little basswood flavor. In 60-lb. cans. Sample free. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—White-clover and basswood honey in new 60-lb. square cans. Write for prices, and state how much wanted.

L. S. GRIGGS, 711 Avon St., Flint, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb and extracted honey and beeswax. Write us. HILDRETH & SEGELKEN, New York.

WANTED.—To buy amber and dark extracted honey. Name price delivered here.

A. G. WOODMAN CO., Grand Rapids, Mich.

HELP WANTED

WANTED.—Good beekeeper for 1913. Give experience and age. GEORGE LARINAN, Pasadena, Cal.

WANTED.—Experienced beemen for comb honey for season of 1913. State salary, experience, age, etc. W. LINDENMEIER, JR., Ft. Collins, Col.

WANTED.—Salesmen to establish a paying business selling our honey direct to the family trade in your home town. Complete instructions and honey supplied in small sizes.

BULL & CAVANAGH, Hebron, Ind.

WANTED.—Man to run an apiary for extracted honey, and board himself. Give age, nationality, experience, references, and wages expected, in first letter. Wages or shares to right party. No liquor or tobacco user need apply.

J. W. KALFUS, Salinas, Cal.

FOR SALE

A full line of Roots goods at Root's prices.

A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Root or Falconer bee supplies. Free catalog. Save freight.

G. F. STANTON, Buckingham, Fla.

FOR SALE.—Complete outfit, extractor, hives, swarm-catcher, etc.; 65 strong colonies bees, cheap. J. R. HELM, Schell City, Mo.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case.

C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—At bargain prices, 8-frame double-walled hives in flat, to reduce stock.

A. G. WOODMAN & Co., Grand Rapids, Mich.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

New crop white-sweet-clover seed, 2000 lbs. unhulled; 4 lbs. by mail, prepaid, \$1.00; 50 to 100 lbs., 12 cts.; sacks 25 cts. extra.

R. L. SNOODGRASS, Harrisburg, Colo.

FOR SALE.—Second-hand dovetailed hives and supers for extracted honey; also 50 eight-frame comb-honey supers for plain sections, cheap.

R. E. YEAGER, Cameron, Mills, N. Y.

SEED WHEAT.—Improved Poole seed wheat—one of the highest yielders at the Ohio Experiment Station, where this seed originated. Guaranteed free from all foul seeds. Re-cleaned ready for drilling. Write for prices. L. H. RANDALL, Medina, O.

Bees supplies for all southern Idaho and east Oregon beekeepers, wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest.

C. E. SHRIVER, Boise, Idaho.

FOR SALE.—100 cases of capped tumblers in re-shipping cases of 4 dozen each; hold $5\frac{1}{2}$ to 6 oz. of honey—correct size for 10-cent package. I bought more than I need, and offer them at cost. Price 80 cts. per case, in lots to suit, F. O. B. here.

ALBERT G. HANN, Pittstown, N. J.

FOR SALE.—46 colonies of bees in good condition, and healthy, in Danz. hives; 54 new Danz. hives; 300 Danz. supers; 10,500 No. 1 sections, 75 lbs. surplus foundation, bee-escapes, foundation-fasteners, queen-cages, etc., at Alger, Skagit Co., Wash.; best offer before March 1 takes the apiary.

E. W. SMITH, Troutdale, Ore.

FOR SALE.—For fifty dollars, 70 $1\frac{1}{2}$ -story dovetailed hives, all painted; 49 full combs on wire, used as extracting-combs; 21 with new Hoffman frames, metal-spaced, wired, with starters; one Novice reversible extractor, four-frame, nearly new; one queen-cage; 200 Hoffman frames in flat, metal-spaced; 900 4 x 5 x $1\frac{1}{2}$ No. 2 pound boxes in flat; 14 five-gallon tin cans, new, in shipping cases.

THOS. WILBY, Brewster, Minn.

FOR SALE.—Bees and combs, 45 colonies in ten-frame homemade hives, L. frames, at \$4.00 per colony if taken soon. These bees were all requeened late in summer, mostly from queens of Geo. B. Howe stock, and are in good condition; have never had disease in my yard. Also 800 to 1000 full-drawn combs in L. frames, nearly free from drone comb, together with ten-frame hive-bodies containing them.

L. P. HOLMES, Frankfort, Kans.

BEES AND QUEENS

Our queens will please you. Price \$1.00 each.
C. W. PHELPS & SON, Binghamton, N. Y.

FOR SALE.—100 colonies bees, ten-frame hives, all in good condition. Prices reasonable.
MRS. L. D. SMITH, Box 102, Mesa, Ariz.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Bees by ½-lb., 75 cts.; 1 lb., \$1.25; two-frame nuclei, \$1.85; with Italian queen, \$2.35, March and April delivery.
J. B. MARSHALL,
Rosedale Apiaries, Big Bend, La.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super redwood, dovetailed, three coats white, sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnett's, Va.

We will requeen all our 2000 colonies this spring. We offer the one-year-old queens, removed from these hives, at 40 cts. each; \$4.20 per doz.; \$30.00 per 100, delivered any time before June 1. Your money back if not satisfied. First come, first served. Book orders now.

SPENCER APIARIES Co., Nordhoff, Cal.

WANTS AND EXCHANGES

WANTED.—To exchange bass-viol and Columbia cylinder graphophone for honey and wax.
G. C. THRASHER, Laquid, Pa.

WANTED.—The address of the party who advertised English walnuts trees about a year ago. Address this office.

WANTED.—One 12 or 16 inch cigar-box planer. What have you to offer?
R. H. SCHMIDT,
Rt. 3, Box 209, Sheboygan, Wis.

WANTED.—A young man desires 150 to 300 colonies to work on shares during 1913 or longer. Middle Atlantic States preferred. Eleven years' experience, producing both comb and extracted. References.
H. C. KAUTZ, N. Water Gap, Pa.

POSITIONS WANTED

One apiarist, queen-breeder, one assistant apiarist, desire engagement to work one or more apiaries on salary or shares for 1913; west of the Rocky Mountains preferred. References exchanged.

APIARISTS, Rt. 3, Box 9B, Oroville, Cal.

WANTED.—A cultivated and experienced young apiarist, one versed in farmwork, desires a steady position in any place in the United States. Best references and particulars on request.

D. BARONE, 2095 Second Ave., New York, N. Y.

WANTED.—A position in an American apiary (California preferred) with the view of getting one or two years' experience in beekeeping. I am now 20 years of age, and in charge of the government queen-rearing apiary at the Warenga Experiment Farm. This is my fourth season. Good references furnished. Correspondence solicited. A. P. YOUNG, Te Kauwhata, Auckland, New Zealand.

MISCELLANEOUS

WANTED.—Raw furs, honest prices, honest grades.
GEORGE E. KRAMER, Valencia, Pa.

Rufus-red Belgian hares. Price list free.
HARVEY L. STUMB, Richland Center, Pa.

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

FOR SALE.—Ginseng, goldenseal, and calabash gourd seed; sample, 25 cts. Agent for Bowker's Pyrox.
S. PITTS, Stronghurst, Ill.

White-flowered goldenrod for sale at the rate of 50 plants for 50 cts., postage prepaid. The only plant that yields nectar and pollen after frost.
JAMES S. JOHNSON, Langrau, Ky.

I have a No. 1 concrete-building-block machine (no better ever made) that I will trade for bees at \$600.00.
S. H. RICKARD,

506 Machesney Bldg., Pittsburg, Pa.

FOR SALE.—High-class hunting, sporting, watch, and pet dogs; puppies of all varieties a specialty. On receipt of 10 cents me mail highly descriptive illustrated catalog, which gives full information of 49 breeds of dogs; several breeds of cattle, sheep, swine, rabbits, ferrets. Price list of poultry and pigeons.
C. LANDIS, Dep't 230, Reading, Pa.

REAL ESTATE

FOR RENT or sale, 80-acre improved farm, one mile from Canton, with 40 or 50 colonies of bees with full equipment. L. A. SYVERUD, Canton, S. Da.

FOR SALE.—80 acres of good land, fine buildings, 85 apple trees, 7½ miles north of Grand Ledge, Mich. Price \$5600. ALPHA BRACE, DeWitt, Mich.

Home of 10 acres, unlimited bee and poultry range—good market; healthiest locality in Texas; \$3000. If you mean business, apply to
A. F. Z., Box 115, Llano, Texas.

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia.
F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

INDIAN RUNNER DUCKS

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.

KENT JENNINGS, Mt. Gilead, O.

POULTRY

Buttercups and Kellerstrauss Orpingtons at bargain prices if taken soon.

CLAUD IRONS, Linesville, Pa.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.

CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Barred Rocks, Aristocrat Strain. Winners at all leading shows, both meetings; 200 fine pullets and 250 fine cockerels. These cockerels will improve your flock tenfold the first season.

W. G. GILMORE, Farmland, Ind.

Sicilian Buttercups. "Quality, not quantity," our motto. Eggs, \$1.50 and \$3.00 per 15.

WALTER M. ADEMA, Berlin, Mich.

A golden opportunity to secure eggs from beautiful birds, and great egg-layers, at a moderate cost; eggs, 15, \$1.00; \$6.00 per 100; eggs from large rich red S. C. R. I. Reds, same price. "How to Rear and produce an abundance of eggs from the Twentieth Century Egg-machine" goes with each order. Fertility and safe delivery absolutely guaranteed.

ROBT BIRD Pinckneyville, Ill.

Chicken feed, hen feed, alfalfa meal, pigeon feed, mash, \$1.73 per 100-pound sack; beef scrap, \$3.30; granulated bone, \$2.70; charcoal, \$2.00; Kafir corn, \$1.60; cracked corn, \$1.60; corn meal, \$1.60; linseed meal or cottonseed meal, \$2.20; oyster-shells, 65 cts.; mica, crisco, or pearl grits, 75 cts.; lime nest-eggs, 75 cts. per box; poultry bread, 60 cts. per sack. Mail orders promptly filled.

FOUNTAIN SUPPLY CO., St. Louis, Mo.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Convention Notices

PROGRAM OF THE NATIONAL BEEKEEPERS' CONVENTION TO BE HELD AT CINCINNATI, OHIO, WEDNESDAY AND THURSDAY, FEB. 12 AND 13.

The meeting will be called to order at 10 A. M., when a committee on credentials will be appointed. Meeting will then adjourn for the filing of delegates' credentials.

AFTERNOON SESSION.

1 P. M.—The following order of business will be observed:

1. Appointment of a committee on resolutions; a committee on constitution; an auditing committee, and a committee on good of the order.

2. President's address.

3. Vice-president's report.

4. Secretary's report.

5. Treasurer's report.

6. Directors' report.

7. Legislative Committee's report.

8. Proposed amendments.

EVENING SESSION, 7 P. M.

1. Address.—"Needs of the Western Beekeepers," by Wesley Foster, Boulder, Col.

2. Discussion.

3. Address.—"Why the Production of Comb Hon-

ey should be Increased," by Ernest R. Root, of Medina, Ohio.

4. Discussion.

MORNING SESSION, 8 A. M.

1. Report of the Auditing Committee.

2. Amendments to the constitution.

3. Incorporation of the National.

4. Election of officers and directors.

5. Report of committee on uniform grading-rules—buyers and producers.

6. Discussion of uniform shipping cases.

7. Other business.

AFTERNOON SESSION, 1 O'CLOCK.

1. Address.—"Some Recent Achievements, with suggestions for 1913," by Dr. B. N. Gates, of Amherst, Mass.

2. Discussion.

3. Short talks by the delegates; each delegate will be called on for an address on any topic he sees fit to select.

4. Question-box.

After much correspondence the Grand Hotel, located at the corner of Fourth and Central Avenues, has been selected as our headquarters. The hotel will hold about five hundred people. The rates for rooms (European plan) are from \$1.00 each person, up, without bath, and \$2.00 up, with bath. The convention will be held on the second floor. All sessions will be open to the public; but the voting will be done only by the delegates.

A list of the hotels is as follows:

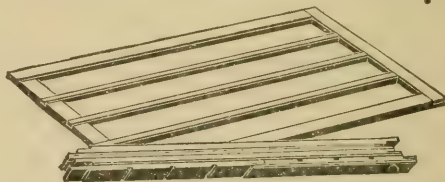
Hotel Alms (American plan), \$3.00 up.
Bristol Hotel (European plan), 50 cts. up.
Burnett House (American plan), \$2.50 up.
Hotel Emery (European plan), \$1.00 up.
Gerdes Hotel (European plan), \$1.00 up.
Grand Hotel (European plan), \$1.00 up.
Gibson House (European plan), \$1.50 up.
Hotel Havlin (European plan), \$1.50 up.
Honing Hotel (European plan), \$1.50 up.
Hotel Hoerner (European plan), 50 cts. up.
Hotel Lackman-Stag (European plan), \$1.00 up.
Hotel Oxford (European plan), 50 cts. up.
Munro Hotel-Stag (European plan), \$1.00 up.
Pallace Hotel (American plan), \$2.00 up.
Princeton Hotel (European plan), 75 cts. up.
Hotel Rand (European plan), 50 cts. up.
Hotel Savoy (European plan), \$1.00 up.
Hotel Sinton (European plan), \$2.00 up.
Stag Hotel (European plan), 50 cts. up.
Sterling Hotel (American plan), \$2.00 up.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

HOTBED SASH.

The time is at hand when many are preparing for winter or early spring vegetables. If you are interested we would be pleased to send you a copy of our booklet, "How to Make and Run a Hotbed."



We are also prepared to furnish hotbed sash made of cypress, the everlasting wood, either K. D. or put together without or with the glass at the following prices:

One sash in flat, no glass.....\$.90
Five sash in flat, no glass..... 4.25
Ten sash in flat, no glass..... 8.00

LEWIS BEEWARE MEANS

GOOD QUALITY, SCIENTIFIC WORKMANSHIP
CAREFUL PACKING
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Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

Put together, 10 cts. each extra; painted, 10 cts. each for each coat of paint. Glazed with 8 x 10 glass, \$1.10 each extra. This makes the price in lots of ten, put up, glazed and painted two coats of paint, \$2.20 each; or without the paint, \$2.00. As regularly furnished, the sash are grooved for glass to be butted; but we also furnish at the same price, when specified, rabbeted sash to allow glass to be lapped and puttied in.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0121, 2 1/4 x 10-inch heavy hexagonal brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price \$8.00.

No. 0139, 2 1/2 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2 1/2 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, 2 1/2 x 6 hexagonal thin-super mill in fair shape. Price \$10.00.

No. 0151, 2 1/2 x 6 hexagonal cell extra thin-super mill, one bad cell, otherwise in good condition. Price \$12.00.

No. 0152, 2 1/2 x 6 hexagonal thin-super mill, extra good for regular-width super foundation. Price \$12.00.

No. 0153, 2 1/2 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, 2 1/2 x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, 2 1/2 x 6 extra-thin-super mill, fair. Price \$10.00.

No. 0157, 2 1/2 x 6 thin-super mill, in good condition. Price \$12.00.

No. 0160, 2 1/2 x 6 hexagonal thinsuper mill, in good condition. Price \$12.00.

No. 0164, 2 1/2 x 6 hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0165, 2 1/2 x 6 hexagonal extra-thin-super mill, in fair condition. Price \$11.00.

No. 0166, 2 1/2 x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0167, 2 1/2 x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0176, 2 1/2 x 6 extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, 2 1/2 x 6 hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0182, 2 1/2 x 6 hexagonal thin-super mill, very good condition. Price \$20.00.

No. 0183, 2 1/2 x 6 hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0187, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0191, 2 x 10 round-cell Pelham mill in good condition for this kind of mill. The bases of the cells are not natural shape, but the walls are regular. Price \$7.00. Sample mailed free if interested.

No. 0193, 2 1/2 x 10 hexagonal medium-brood mill; very good condition. Price \$18.00.

No. 0194, 2 1/2 x 10 hexagonal medium-brood mill, in good condition. Price \$18.00.

No. 0195, 2 1/2 x 10 hexagonal medium-brood mill, in good condition. Price \$18.00.

No. 0197, 2 1/4 x 10 hexagonal medium-brood mill in very good condition. Price \$20.00.

No. 0198, 2 1/2 x 10 hexagonal medium-brood mill, in very good condition. Price \$20.00.

No. 0199, 2 1/2 x 10 hexagonal medium-brood mill in very good condition. Price \$20.00.

No. 0200, 2 1/2 x 10 hexagonal medium-brood mill, in good condition. Price \$18.00.

I received the queen you sent, replacing the one I lost, which was unexpected to me. I did not in any way expect you to make the loss good. I have the six now, all fine queens, and good even layers. I am proud of them. One increased the colony; reared a daughter, and led out a fine September swarm. I saved her, and now have my seventh Italian queen. I have only 20 colonies, and have extracted over 100 lbs. from each this year.

Berino, N. M., Sept. 10.

M. P. GIBSON.

PUBLICATIONS ON

BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

- 1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.
- 3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet recting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.
- 4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.
- 8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- 9 **How to Keep Bees.** A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 **The A B C of Bee Culture.** A complete encyclopedia of bees, of 576 pages, fully illustrated, \$1.50 postpaid; half leather, \$3.
- 11 **Cleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.
- 12 **Back-yard Bee-keeping.** Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 15 **Truth About Sweet Clover.** Interesting booklet of nearly 100 pages. Tells of value of sweet clover for honey, for plowing under, as fertilizers of the soil, and food for horses, cattle, swine, sheep, etc. Free.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

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Please send me the items checked. I enclose \$..... to cover the cost.

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Town

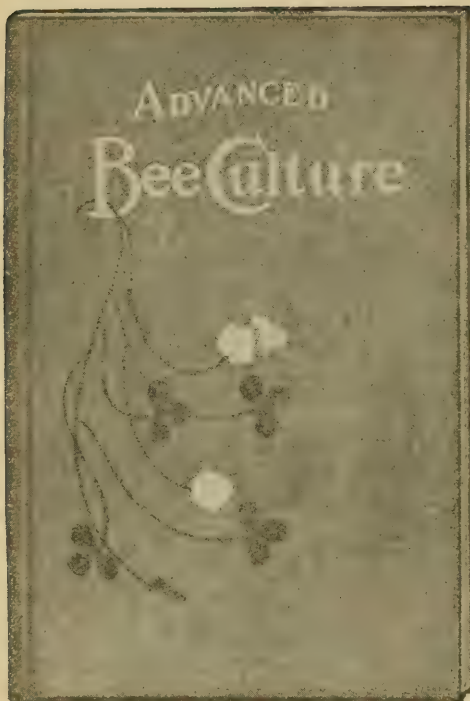
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The untimely death on May 30, 1911, of Mr. W. Z. Hutchinson, author of

Advanced Bee Culture

marked the passing of one of the most brilliant writers who have ever championed the cause of the honey-bee. . . . Perhaps no better tribute to this talented man could be given than that contained in the following paragraph from a testimonial article on Mr. Hutchinson's life by Prof. A. J. Cook, in *Gleanings*:

"No one could know him and his work without convincing proof that he stood in the very front ranks of our beekeeping fraternity. His quick intellect, coupled with his close attention to details, won for him, at the very start, phenomenal success as a queen-breeder. To this, apiculture owes its great good fortune in securing his life-long service in its development. He was temperamentally exact and methodical, transparently honest, and if I were to select one word to characterize our brother it would be genuineness. He was delightfully companionable, and always alert for any new idea or suggestion touching the interests of the work to which he was so entirely devoted. His quick apprehension, and terse clear-cut style as a writer, made him a most reliable exponent of all that was latest and best in the theory and practice of his beloved art."



Nearly 500 Subjects Pertinent to Modern Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth. A volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

Most fortunate for all beekeepers is the fact that Mr. Hutchinson's life was spared just beyond the point when he had completed his reading and correction of the editorial proofs of the new edition of *ADVANCED BEE CULTURE*. Only a few short days after an editorial by Mr. E. R. Root, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book, had appeared, the call came, and this sterling, upright man, whom everybody loved, was taken home. Read what Mr. Root has to say of Mr. Hutchinson's book:

As a writer on bees Mr. Hutchinson has few equals. For clearness and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and useful from an extended discussion is intuitive. The last edition of "*Advanced Bee Culture*," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by the master of the art of boiling down discussions. I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced beekeeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it up in connection with some other work like the "*A B C and X Y Z of Bee Culture*," or any text-book designed especially for the beginner class.

\$1.50 Buys a Two-dollar Value

ADVANCED BEE CULTURE costs \$1.00 per copy. *GLEANINGS IN BEE CULTURE* (semi-monthly)—known and read by beekeepers throughout the world—\$1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination—the book here described, and *GLEANINGS* one year, both for \$1.50. It is a value you will very seldom find—really it is a good \$2.00 worth for \$1.50.

Foreign postage, 60 cents extra; Canadian postage, 30 cents extra.

You Want a KEROSENE Not a GASOLINE Engine

GASOLINE IS 3 TIMES TOO COSTLY

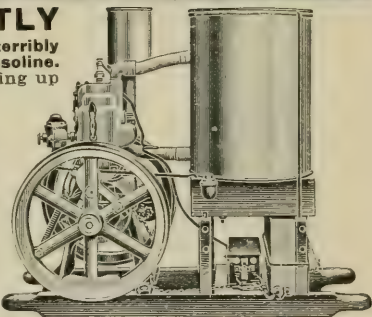
In buying your farm engine, remember this: gasoline has become terribly expensive, and you can't use anything in a gasoline engine BUT gasoline. In six months the price of gasoline has nearly doubled. Still going up and up. You would not buy a horse that would eat ONLY OATS--WHY, then, buy an engine that uses ONLY ONE FUEL?

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Automobile users are fast exhausting the world's supply of gasoline. Hence the enormous and constantly increasing price. The 1,200,000 automobilists in 1913 will use up almost HALF A BILLION GALLONS OF GASOLINE. Think how that will further push up the price!

KEROSENE--THE PERFECT FUEL

Kerosene is cheap--costs but two-fifths as much as gasoline--and the price remains about the same--yet two pints of kerosene furnish the same power as three pints of gasoline. That's 50 per cent more power and 60 per cent less price. Kerosene isn't dangerous--no need of an insurance permit. It won't explode--it won't evaporate, either. Not so with gasoline.



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Price now \$29.50 and up, stripped. The "DETROIT" is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking--Basic patent--only three moving parts--no cams--no sprockets--no gears--no valves--the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Engine tested just before crating. Comes all

ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-light plant. Sent any place on 15 days' free trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write we'll allow you SPECIAL EXTRA-LOW INTRODUCTORY PRICE.

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Here's the greatest REAL bargain on farm engines you ever saw. My new 1913 Model starts at a touch. It's the simplest to run--most staunchly constructed--sure in action--economical in operation--and develops more than rated h. p. 13-4 to 15 h. p. These

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Get my book and learn all the facts. How to tell a good engine, how little to pay, how to buy on 30-day trial, 5-year guarantee--and special 1913

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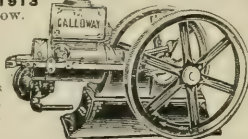
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Stocks on hand at Kansas City, Council Bluffs, St. Paul, and Chicago. Prompt shipments.



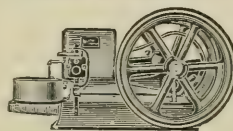
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No more high lifting or pitching. Saves you work and lightens draft nearly 50%. Don't rut fields or roads. We also furnish Electric Steel Wheels to fit ANY wagon. Wheels can't dry out or rot. Send for free book of facts and proofs.

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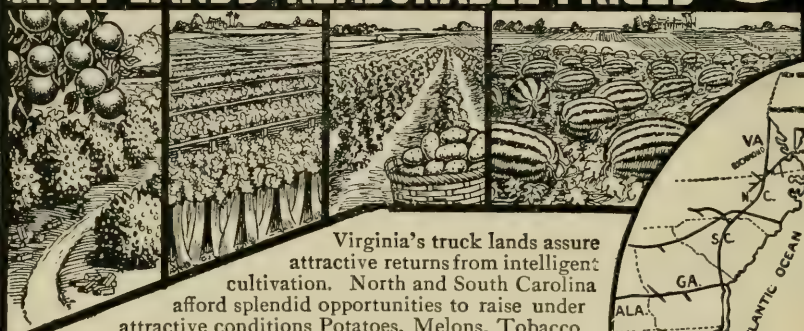
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RICH LANDS-REASONABLE PRICES

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Planet Jr.

Get these time-saving, labor-lightening farm and garden tools to secure the greatest yield from your crops. They are scientific soil-tillers—the result of a practical farmer's more than 40 years' experience. Light, strong, and lasting. Fully guaranteed.

No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel Hoe, Cultivator, and Plow does the work of almost all garden tools combined. It sows accurately *all* garden seeds, cultivates, hoes, furrows, and plows. Indestructible *steel* frame.



No. 4

No. 8 Planet Jr Horse 12oz and Cultivator does more kinds of work better, quicker, and easier than any other cultivator. Indispensable on the up-to-date farm. Can be fitted with plow and disc attachment and all-steel wheel—new this year.

FREE An instructive 64-page illustrated catalogue

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No. 8

Gleanings in Bee Culture

"NOVICE'S"

Gleanings IN Bee Culture.

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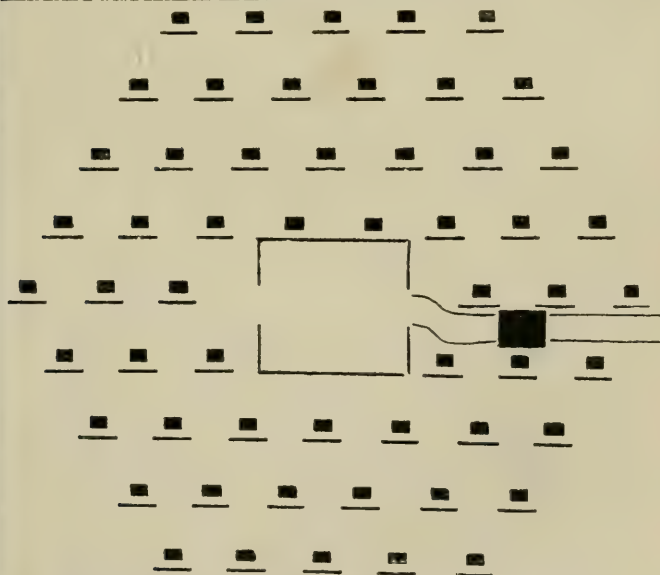
Or how to Realize the Most Money with the Smallest Expenditure of Capital
and Labor in the Care of Bees, Rationally Considered.

PUBLISHED MONTHLY.

VOL. I.

MEDINA, O., APRIL 1, 1873.

No. 4



ARRANGEMENT OF THE APIARY.

(We should add Designed and Engraved by "Novice," but "P. G." says it wasn't engraved for
"he did it with a saw." P. S.—*Novice* are Novice's last bobby.)

Some of our subscribers may find it convenient to club their magazine orders, and we shall be glad to handle such for them. Below we give a few of our special clubbing offers. If you are especially interested in a clubbing rate on some other magazine not mentioned, write for price.

GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$2.40.
YOUTH'S COMPANION,	1 year \$2.00,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	All for \$2.00.
THE GARDEN MAGAZINE,	1 year \$1.50,	
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GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.50.
PICTORIAL REVIEW,	1 year \$1.00,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.40.
The WEEKLY ENQUIRER (Cincinnati),	1 year \$1.00,	
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THE FRUIT-GROWER,	1 year \$1.00,	
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Because of additional postage required, these offers do not apply in Canada nor foreign countries.

All orders handled very promptly, and at a minimum of trouble to yourself. Subscriptions to begin with the first possible issue unless otherwise stated.

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"falcon" SUPPLIES

Made by Mr. Falconer since
the early seventies at
Falconer, N. Y.

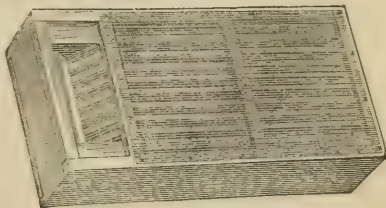
Among our supplies are many handy specialties: in fact, throughout our whole catalog we list only the convenient, handy articles necessary to success, and do not try to confuse with impractical or unnecessary items. Yes, our catalog is the simplest and the easiest from which to order of any ever published. Send postal for copy.

TWO OF OUR CONVENIENCES



Comb-holder

Fits to side of hive for hanging the frames during manipulating. Price, each, 25 cts. Postage east of Mississippi, 9 cts.; postage west of Mississippi, 12 cts.



Page Feeder

Placed over frames; pronounced the best spring feeder made. Price, each, 35 cts. Postage east of Mississippi, 16 cts.; west of Mississippi, 24 cts.

Write for samples of our foundation and Red Catalog postpaid.
All goods guaranteed. A trial will convince you.

The W. T. Falconer Mfg. Company.

Falconer, New York

Where the good beehives come from

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time"
It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

NEW STOCK

The A. I. Root Co., of Syracuse are constantly receiving goods, and now good time to order to them for the next year early

We are now receiving goods for next season, and it would be a good time for you to do likewise.

Send in your list for supplies that you will need, and quotations will be mailed you. Catalog for 1913 is not yet out, but you can use 1912. If you have no catalog, one will be mailed on request.

THE A. I. ROOT CO., SYRACUSE, N. Y.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and en-

tirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8; beeswax, 30.

Boston, Jan. 20.

BLAKE-LEE CO.

DENVER.—We quote comb honey in a jobbing way at the following figures: No. 1, \$3.05; choice, \$2.90; No. 2, \$2.70. Extracted honey, white, 9; light amber, 8; strained, 6½ to 7. We pay 26 in cash and 28 in trade for clean yellow beeswax delivered here. THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Denver, Jan. 18. FRANK RAUCHFUSS, Manager.

CHICAGO.—This past week has shown renewed activity in the honey market; and while the supply is ample, the prices are fairly well maintained. The best grades of white comb honey bring 16 to 17 cts. per lb., with a shading of 1 to 3 cts. per lb. on the lower grades, according to quality and color. Extracted clover and basswood ranges from 9 to 10, with other grades and kinds at about 8. Beeswax is steady at from 30 to 32, according to color and cleanliness.

R. A. BURNETT & Co.
Chicago, Ills., Jan. 20.

CINCINNATI.—The demand for honey at the present time is rather quiet, and we do not look for a change until about the middle of next month. However, we quote fancy double-decker comb honey at \$3.75 to \$4.00 a case; fancy extracted honey in 60-lb. cans at 9 to 10; and amber extracted honey in barrels at from 6½ to 8, according to the quality and quantity purchased. The above are our selling prices, not what we are paying. For strictly choice bright yellow beeswax we are paying from 28 to 30 cts. delivered here.

Cincinnati, Jan. 9. THE FRED W. MUTH CO.

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INDIANAPOLIS.—Fancy white sells at 18 in ten-case lots; No. 1 white 1 ct. less; amber comb is in slow demand and at lower figures. Best extracted sells at 11 to 12 in five-gallon cans. There is an excessive demand for comb honey, but very little is now being offered by producers. Beeswax is in good demand, and producers are being paid 30 cts.

Indianapolis, Jan. 20. WALTER S. POWDER.

ZANESVILLE.—The honey market is about as active as could be expected so soon after the holidays. and prices are practically unchanged. We quote No. 1 white comb honey in single-case lots at 19, with some reduction on larger orders. Extracted in 60-pound cans brings 10 to 11. Producers are receiving for beeswax 30 cts. in exchange for supplies, or 28 cash.

Zanesville, Jan. 17.

E. W. PEIRCE.

CINCINNATI.—The demand for comb and extracted honey is light, with a good supply. No. 1 white comb honey sells in large lots at \$3.60 per case of 24 sections. There is no demand for off grades. White extracted honey in 60-pound cans is selling from 9½ to 10; light amber in barrels, 7 to 7½; in 60-lb. cans, 8 to 8½. Beeswax, fair demand, sells at \$33.00 per hundred. The above are our selling prices, not what we are paying.

Cincinnati, Jan. 17. C. H. W. WEBER & Co.

NEW YORK.—Comb honey is fairly well cleaned up. Some little lots are still arriving, but none of any large size. The demand is fair at unchanged prices. The market on extracted honey is decidedly dull. The high prices this season for fancy stocks such as white clover and California sage have lessened the demand to some extent, and some companies have quit packing altogether. While the supplies are not large of the above named, they are sufficient to meet the demand, at prices ruling same as were furnished last. West Indian honey is weakening considerably, and is selling now at about 73 to 75 cts. per gallon, according to quality. Beeswax is quiet at 30 to 31.

New York, Jan. 20. HILDRETH & SEGELKEN.

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J. J. WILDER, Bradentown, Fla.

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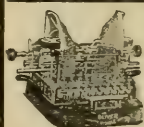
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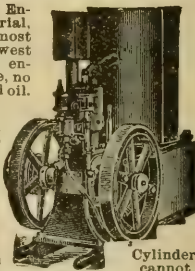
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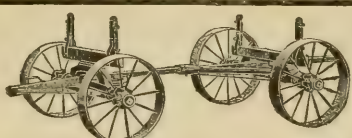
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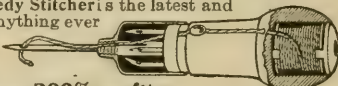
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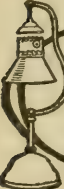
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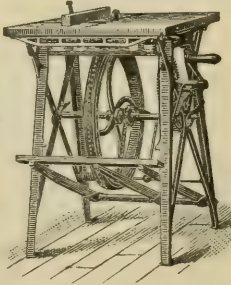
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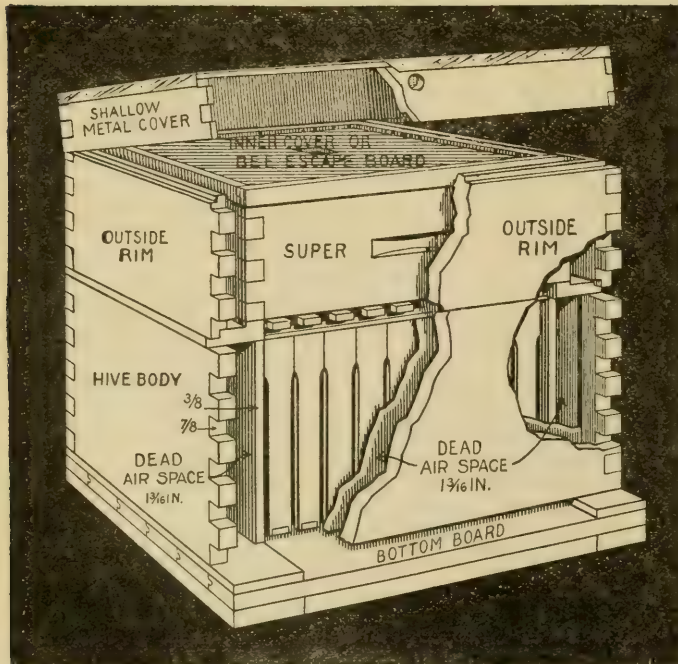
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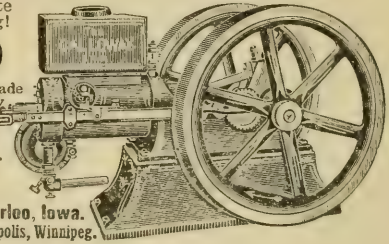
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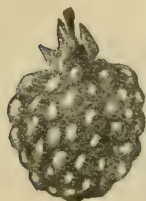
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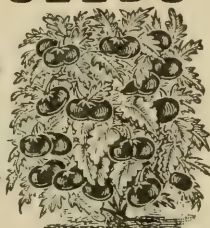
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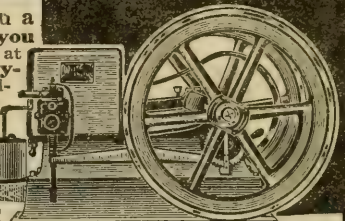
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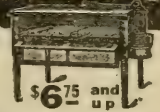
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WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

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Bees supplies for all southern Idaho and east Oregon beekeepers, wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest. C. E. SHRIVER, Boise, Idaho.

FOR SALE.—A bargain, one Novice two-frame honey-extractor in good condition; one good bee-smoker, two Bingham uncapping-knives, ½ dozen 10-frame wood-bound zinc honey-boards, all for \$5.00. LEON BROWN, Superior, Neb.

FOR SALE.—200 Danzenbaker supers, new, nailed and painted; equipped with shallow Danz. extracting-frames. Just the thing for chunk honey, and highly recommended for sectional hive. Will sell frames without supers. Supers with frames, 60 cts. each; frames only, \$2.00 per hundred. ANNA DEAN FARM, Barberton, Ohio

POSITIONS WANTED

SITUATION WANTED.—By a young man who has successfully passed his examinations after taking a course of lectures and demonstrations in apiculture at the Ontario Agricultural College. Any one desiring help of this kind for the season of 1913, kindly correspond with MORLEY PETTIT, Provincial Apiarist, Ontario Agricultural College, Guelph, Canada.

BEES AND QUEENS

Our queens will please you. Price \$1.00 each.
C. W. PHELPS & SON, Binghamton, N. Y.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Bees by $\frac{1}{2}$ lb., 75 cts.; 1 lb., \$1.25; two-frame nuclei, \$1.85; with Italian queen, \$2.35, March and April delivery.
J. B. MARSHALL,
Rosedale Apiaries, Big Bend, La.

Do you wish to be treated right? Then send your orders for untested three-banded Italian queens to us—75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival, and the Golden Rule for all our customers.
THE GOLDEN RULE BEE CO., Riverside, Cal.

Colonies of Italian bees in L. hives, 10-fr., built on full brood-frames, wired, body and shallow super redwood, dovetailed, three coats white. sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnett's, Va.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei, per frame, \$1.50. No disease here. Everything guaranteed.
C. B. BANKSTON, Buffalo, Leon Co., Tex.

We will requeen all our 2000 colonies this spring. We offer the one-year-old queens, removed from these hives, at 40 cts. each; \$4.20 per doz.; \$30.00 per 100, delivered any time before June 1. Your money back if not satisfied. First come, first served. Book orders now.
SPENCER APIARIES CO., Nordhoff, Cal.

There is a key to all business; and the key to successful honey production is "good" queens. We have them, and know how to raise them. Thirty-five years' experience. Three-banded Italians, 75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival and satisfaction to everybody. We handle successfully the orders of the largest producers.
THE RIALTO HONEY CO., Rialto, Cal.

MISCELLANEOUS

Rufus-red Belgian hares. Price list free.
HARVEY L. STUMP, Richland Center, Pa.

WANTED.—Raw furs, honest prices, honest grades.
GEORGE E. KRAMER, Valencia, Pa.

Strawberry Growing by Strawberry Pete, sent free.
P. A. ANDERSON, Grand Mound, Iowa.

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

FOR SALE.—Ginseng, goldenseal, and calabash gourd seed; sample, 25 cts. Agent for Bowker's Pyrox.
S. PITTS, Stronghurst, Ill.

If you live where spicewood grows you can make big money gathering it. Correspond with JOHN H. BLACK, 214 Commercial St., Los Angeles, Cal.

White-flowered goldenrod for sale at the rate of 50 plants for 50 cts., postage prepaid. The only plant that yields nectar and pollen after frost.
JAMES S. JOHNSON, Langnau, Laurel Co., Ky.

WANTS AND EXCHANGES

WANTED.—Good honey location with or without bees.
D. E. LHOMMEDIEU, Colo, Iowa.

WANTED.—Bees; 25 to 100 colonies; no diseased ones. Address PAUL QUAY, Rt. 3, Altamont, N. Y.

WANTED.—To trade Light Brahma and Rhode Island settings for bees, nuclei, etc.
LUKE STALEY, JR., Pleasant Ridge, Ohio.

WANTED.—One 12 or 16 inch cigar-box planer. What have you to offer?
R. H. SCHMIDT,
Rt. 3, Box 209, Sheboygan, Wis.

WANTED.—To exchange six-frame power extractor for four-frame hand machine; also foundation mill, for any thing I can use.
W. C. GATHRIGHT, Fillmore, Cal.

To EXCHANGE.—A Root foundation-mill, dipping-pan and boards, for an iron garden roller, spray pump, or double-wheel hoe.
FRANK LACEY, Danbury, Conn.

WANTED.—Bees. Could, at fair price, take a car-load of bees in the spring; prefer middle or southern States. Address, giving particulars,
R. F. HOLTERMANN, Brantford, Ontario, Canada.

CARLOAD BEES WANTED.—300 colonies bees for spring delivery, in good condition and no disease. Must be in ten-frame brood-chambers, no bottoms or covers. We furnish both top and bottom shipping-screens. State all particulars and price in first letter.
THE LOUIS H. SCHOLL APIARIES,
New Braunfels, Tex.

HELP WANTED

WANTED.—Good beeman for 1913. Give experience and age.
GEORGE LARINAN, Pasadena, Cal.

WANTED.—Help for the bee season of 1913. Give experience and age.
B. B. COGGSHALL, Rt. 12, Groton, N. Y.

WANTED.—A good young man for the season of 1913 to work in bees. State salary, experience, age, etc., in first letter.
FRANK C. ALEXANDER, Delanson, N. Y.

WANTED.—Reliable man of good habits for season of 1913, to work with bees and on farm. Use automobile for out-yards. State age, experience, and wages.
N. L. STEVENS, Moravia, N. Y.

WANTED.—Salesmen to establish a paying business selling our honey direct to the family trade in your home town. Complete instructions and honey supplied in small sizes.
BULL & CAVANAGH, Hebron, Ind.

One apiarist, queen-breeder, one assistant apiarist, desire engagement to work one or more apiaries on salary or shares for 1913; west of the Rocky Mountains preferred. References exchanged.
APIARISTS, Rt. 3, Box 9B, Oroville, Cal.

I could take two or three young men of good clean habits, to learn beekeeping during the season of 1913; crop last year 45,000 lbs. Board free, and something more if we both do well.
R. F. HOLTERMANN, Brantford, Ontario, Canada.

ASSISTANTS WANTED.—Good chance for right kind of sober, energetic young men in our extensive apiary work, to begin right away. State wages expected, and other particulars, in first letter.
THE LOUIS H. SCHOLL APIARIES,
New Braunfels, Tex.

REAL ESTATE

FOR SALE.—40 improved lots with house, bearing orchard, and good well, in Elk City, Okla.
REV. F. W. KNAPPE, Alta Vista, Ia.

FOR SALE.—3½ acres, good buildings, 60 colonies bees, no disease; splendid territory; investigate at once; near St. Louis.
H. STOCK,
Augusta, St. Charles Co., Mo.

FOR SALE.—A fruit, bee, and poultry farm of 13 acres, ¼ mile from depot of Grant City, Worth Co., Mo. Good buildings, caves, etc. Price \$5000. For particulars write J. G. ALLEN, Grant City, Mo.

Home of 10 acres, unlimited bee and poultry range—good market; healthiest locality in Texas; \$3000. If you mean business, apply to
A. F. Z., Box 115, Llano, Texas.

FOR SALE.—50 acres; 40 tillable; level, free of stone; good for corn, potatoes, gardening, poultry; 7-room house, good barn with silo. Convenient to New York, Boston, by trolley or boat. Price \$2600.
E. P. ROBINSON, Packer, Conn.

A well-established bee business, full equipment for comb or extracted, with 49 acres of land, good improvements, a fine basswood grove, near town and school; 250 colonies of excellent Italian bees; can give time on part. No disease. Only those who mean business need write. E. S. MILES, Dunlap, Iowa.

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia.
F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W., Bldg., Room 73, Roanoke, Va.

POULTRY

Sicilian Buttercups. "Quality, not quantity," our motto. Eggs, \$1.50 and \$3.00 per 15.
WALTER M. ADEMA, Berlin, Mich.

Buttercups and Kellerstraus Orpingtons at bargain prices if taken soon.
CLAUDE IRONS, Linesville, Pa.

FOR SALE.—S. C. Rhode Island Red, eggs and chicks; chicks, \$10 to \$25 per 100. Eggs, \$5.00 to \$12.50 per 100. Satisfaction guaranteed.
C. H. ZURBURG, Topeka, Ill.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Barred Rocks, Aristocrat Strain. Winners at all leading shows, both meetings; 200 fine pullets and 250 fine cockerels. These cockerels will improve your flock tenfold the first season.
W. G. GILMORE, Farmland, Ind.

A golden opportunity to secure eggs from beautiful birds, and great egg-layers, at a moderate cost; eggs, 15, \$1.00; \$6.00 per 100; eggs from large rich red S. C. R. I. Reds, same price. "How to rear and produce an abundance of eggs from the Twentieth Century Egg-machine" goes with each order. Fertility and safe delivery absolutely guaranteed.
ROBT BIRD, Pinckneyville, Ill.

BABY CHICKS.—Our fifth year of successful hatching. We ship safely any distance. We supply from best-known laying strains S. C. White Leghorn, Buff Orpingtons, White Plymouth Rock, and Barred Rock chicks. Remember, we send you only strong vigorous chicks that ought to live and grow, and will if given the proper care. We send no culls. We include enough extra to give the full count on arrival. Prices: 25 or over, 12½ cents; less than 25, 15 cents. You must get the orders to us early if you want our chicks. We have never been able to supply the demand.
AMBEROSE & KNIGHT,
The Poultry People, Dept. G, Urbana, O.

The famous Dumaresq Buttercups. Known all over the country. Winners of fourteen ribbons during the last three years, including Appalachian Exposition; first at Baltimore's great show this year. My patrons won Rochester and other shows. Have filled nearly a thousand orders. Send fowls and eggs to Cuba, Canada, and California, with safety, and report good hatches. Testimonial pullets laying in 124 days. Orders now booked. Send for circular.
Address MRS. J. S. DUMARESQ,
Cato's Hall, Rt. 5, Easton, Maryland.
Vice-president American Buttercup Club.

INDIAN RUNNER DUCKS

Snow-white Indian runner ducks; handsome and hardy; Fishel strain direct.

F. J. ARMSTRONG, Nevada, Ohio.

Select thoroughbred Indian Runner ducks, white and fawn. Eggs, \$1.00 per dozen; \$7.00 per 100.
J. C. WHEELER, Oak Park, Ill.

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.

KENT JENNINGS, Mt. Gilead, O.

FOR SALE.—Pure White Indian Runner ducks, drakes, and eggs. Pure white eggs guaranteed, from duck laying 110 eggs in 120 days. Free copy of "The Indian Runner Duck Book" by Valentine with each order. APPLECROFT, South Manchester, Ct.

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large, pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.

C. O. YOST, Box D, Rt. 4, Winchester, Ind.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-TH-QUEEN-BREEDER, Bellevue, Ohio.

Convention Notices

The annual meeting of the Kansas State Beekeepers' Association will be held in the Commercial Club rooms at Topeka, Feb. 4, 5. We want to see a large number of beekeepers present. The meetings will close with a banquet Tuesday evening, Feb. 5.
Topeka, Kans., Jan. 15. O. A. KEENE.

The Eastern Illinois fourth annual beekeepers' convention will be held in St. Anne, Ill., Feb. 4 and 5, with an evening session on the 4th. Several prominent beemen have promised to be present, and the meeting promises to be more than usually interesting. An important feature of its program will be an

argument on large hives vs. small ones. C. P. Dandant will take the side of the large hives and its advantages, while H. S. Doby will take the opposite side, and will give his reason why small hives are preferable. This question has called the attention of beekeepers of late more than ever; and those who can attend these meetings at St. Anne will have the pleasure of listening to men who have had experience. Aside from a few addresses the question-box method will prevail. Bring your question along, and be one of us, and get your picture "took" for yourself and the bee journals.

St. Anne, Ill., Jan. 6. T. G. WILLIS, Pres.

PROGRAM OF THE NATIONAL BEEKEEPERS' CONVENTION TO BE HELD AT CINCINNATI, OHIO, WEDNESDAY AND THURSDAY, FEB. 12 AND 13.

The meeting will be called to order at 10 A.M., when a committee on credentials will be appointed. Meeting will then adjourn for the filing of delegates' credentials.

AFTERNOON SESSION.

1 P. M.—The following order of business will be observed:

1. Appointment of a committee on resolutions; a committee on constitution; an auditing committee, and a committee on good of the order.
2. President's address.
3. Vice-president's report.
4. Secretary's report.
5. Treasurer's report.
6. Directors' report.
7. Legislative committee's report.
8. Proposed amendments.

EVENING SESSION, 7 P. M.

1. Address.—"Needs of the Western Beekeepers," by Wesley Foster, Boulder, Col.
2. Discussion.
3. Address.—"Why the Production of Comb Honey should be Increased," by Ernest R. Root, of Medina, Ohio.
4. Discussion.

MORNING SESSION, 8 A. M.

1. Report of the Auditing Committee.
2. Amendments to the constitution.
3. Incorporation of the National.
4. Election of officers and directors.
5. Report of committee on uniform grading rules—buyers and producers.
6. Discussion of uniform shipping cases.
7. Other business.

AFTERNOON SESSION, 1 O'CLOCK.

1. Address.—"Some Recent Achievements, with Suggestions for 1913," by Dr. B. N. Gates, of Amherst, Mass.
2. Discussion.
3. Short talks by the delegates; each delegate will be called on for an address on any topic he sees fit to select.
4. Question-box.

After much correspondence the Grand Hotel, located at the corner of Fourth and Central Avenues, has been selected as our headquarters. The hotel will hold about five hundred people. The rates for rooms (European plan) are from \$1.00 each person, up, without bath, and \$2.00 up, with bath. The convention will be held on the second floor. All sessions will be open to the public; but the voting will be done only by the delegates.

A list of the hotels is as follows:

- Hotel Alms (American plan), \$3.00 up.
- Bristol Hotel (European plan), 50 cts. up.
- Burnett House (American plan), \$2.50 up.
- Hotel Emery (European plan), \$1.00 up.
- Gerdes Hotel (European plan), \$1.00 up.
- Grand Hotel (European plan), \$1.00 up.
- Gibson House (European plan), \$1.50 up.
- Hotel Havlin (European plan), \$1.50 up.
- Honing Hotel (European plan), \$1.50 up.
- Hotel Hoemer (European plan), 50 cts. up.
- Hotel Lackman-Stag (European plan), \$1.00 up.
- Hotel Oxford (European plan), 50 cts. up.
- Munro Hotel-Stag (European plan), \$1.00 up.
- Palace Hotel (American plan), \$2.00 up.
- Princeton Hotel (European plan), 75 cts. up.
- Hotel Rand (European plan), 50 cts. up.
- Hotel Savoy (European plan), \$1.00 up.
- Hotel Sinton (European plan), \$2.00 up.
- Stag Hotel (European plan), 50 cts. up.
- Sterling Hotel (American plan), \$2.00 up.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

ALSIKE CLOVER SEED.

The season for seeding alsike clover is near at hand, early spring seeding being recommended as best. Prices of clover seeds remain high again this year because of a short supply. We have a stock of choice alsike which we offer, while it lasts, at 25 cts. per lb.; \$3.50 per peck; \$6.50 per half bushel; \$12.25 per bushel; 2 bushels for \$24.00, bags included; no extra charge.

BEEWAX IN BAGS BY FREIGHT.

We find that the discrimination against shipments of beeswax in double bags applies only to such shipments originating on the Pacific coast which take the transcontinental-commodity tariff. In other western territory, west of Chicago and the Mississippi River, beeswax in barrels, boxes, or double bags, is rated first class. When packed in single bags it takes one class higher, which is 1½ times first class.

JOB LOT OF PAINTED SCREEN CLOTH AT BARGAIN PRICES.

We have secured a lot of painted wire cloth in short rolls, remnants, and with slightly defective weave, at a big reduction from the regular price. Of the regular black painted cloth, 12 mesh to the inch, 33 wire, we have pieces from 10 ft. and up in length, 10 to 48 inches in width, at 1 ct. per square foot for full pieces, or 1½ cts. cut to the length you specify, so long as the supply holds out. Of 14 mesh No. 34 wire, there are pieces from 12 to 44 inches wide, 10 feet and up in length, at 1½ cts. per square foot for full pieces, or 2 cts. for cut pieces. Of 16 mesh, No. 34 wire, the kind which will keep out the smallest mosquitoes, 18 to 48 inches wide, 30 feet and up in length, 1½ cts. per foot for full pieces, and 2½ cts. for cut pieces. There is also an assortment of drab-painted and green-painted cloth of the same sizes of mesh and wire at the same prices as for the black, and in addition. Of 18 mesh, No. 34 wire, from 12 to 44 inches wide, a number of pieces at 2 cts. per square foot in full pieces, or 3 cts. for cut pieces; also a few pieces of 20 mesh at the same price.

We are preparing a printed list, giving the length and width of each piece, which we shall be pleased to mail to enable you to select what you can use. Here is a chance to buy screen cloth at a lower price than you have ever had. First come first served.

SWEET CLOVER.

The interest in this clover continues to increase as the knowledge of its value finds its way to up-to-date farmers. There was issued by the Ohio Agricultural Experiment Station, last July, circular No. 129, on the subject of sweet-clover growing, the result of investigation by Mr. W. A. Lloyd, of the Department. The five-point summary given at the close of this bulletin is as follows:

1. Sweet clover is not a noxious weed.
2. It is of unquestioned value in restoration of worn and eroded soils.
3. It is a valuable forage crop, and worthy of use as such in situations where better crops can not be successfully grown.
4. It shows a very wide adaptation to Ohio conditions, and its extensive use is advisable in the reclamation of much of the semi-abandoned land of the State.
5. In seeding, its lime and inoculation requirements should be carefully looked after.

We are prepared to supply all reasonable demands for seed at the following prices, having in stock a total of five to eight tons of seed:

PRICE LIST OF SWEET-CLOVER SEED.

- Hulled white biennial (*Melilotus alba*), 1 lb., 24c; 10 lbs., \$2.20; 25 lbs., \$5.25; 100 lbs., \$20.00.
 - Unhulled white ditto, 1 lb., 17c; 10 lbs., \$15.50; 25 lbs., \$3.50; 100 lbs., \$13.00.
 - Hulled yellow biennial (*Melilotus officinalis*), 1 lb., 28c; 10 lbs., \$2.60; 25 lbs., \$6.25; 100 lbs., \$24.00.
 - Unhulled yellow ditto, 1 lb., 21c; 10 lbs., \$1.90; 25 lbs., \$4.50; 100 lbs., \$17.00.
 - Hulled yellow annual (*Melilotus Indica*), 1 lb., 14c; 10 lbs., \$1.20; 25 lbs., \$2.75; 100 lbs., \$10.00.
- Samples mailed free on request.

A New Principle— Only 1 Gal. Oil to Hatch One Filling of Lamp

**Saves
Money!**



Write today for
new Free Book on X-Ray
Incubators and Brooders. Learn
everything about this time, labor and
money-saving hatcher. It is shipped *direct*
to you from factory. No agents—no dealers.
Guaranteed to please you. Orders filled same
day received. Freight prepaid *anywhere!*

Just takes one gallon of oil to a hatch—one filling of the lamp.
Old style machines use 3 to 5 gallons of oil to hatch and lamp has
to be filled every day! The X-Ray incubator is built on an entirely
new and different principle from the old style, wasteful machines. It
has lamp underneath, square in the center, where it ought to be—and not
on the side where no perfect temperature could possibly be maintained. With
lamp underneath X-Ray's egg-chamber is always at even heat—always at a
perfect hatching temperature. X-Ray's lid has two double-glass panels—thermometer
can be seen every minute without raising top and chilling eggs.

X-RAY INCUBATOR

"Built Different From All Other Machines"

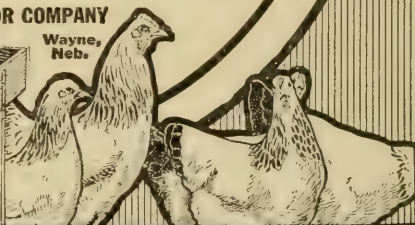
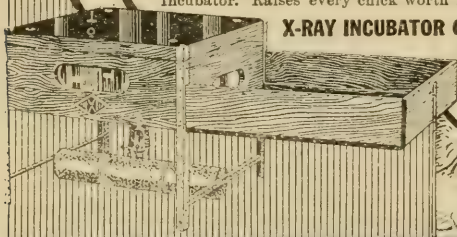
has only proven perfect heat regulator. Our automatic trip—an exclusive patented
feature—cuts down flame at burner when egg-chamber gets too hot—a fine thing—a
saving of lots of oil and money! No excess heat escapes—every bit is used to good
advantage! To use the X-Ray means less egg-handling, less oil, less heat generated,
absolutely no waste, no filling of lamp during hatch, no fumes, no danger of
"cooking" eggs—always even heat over egg-chamber.

**WRITE FOR FREE BOOK No. 100—Get Factory-Direct
Price on X-Ray Incubators and Brooders**

The X-Ray Brooder has same perfect heating system as the famous X-Ray
Incubator. Raises every chick worth raising. Get free book today.

X-RAY INCUBATOR COMPANY

Wayne,
Neb.



HUMPHREYZE

An egg a day in winter—200 a year—feed cost cut
in two—"The Golden Egg" by Humphrey tells it
all. A real teacher of poultry keeping, free. A
Humphrey Bone Cutter will be sent for free test.
HUMPHREY, Mine St. Factory, Joliet, Ill.

FOR EGGS IN WINTER



Latest Book

"Profitable Poultry,"

Finest published, 128
pages practical facts, 180 beautiful pictures. Tells
how to breed, hatch, feed and market by latest
improved methods. All about world's famous
Runner Ducks and 52 other pure-bred varieties.

This 50-cent book and lowest price list of best
fowls, eggs, incubators, supplies, etc., only 5 cents.
BERRY'S POULTRY FARM, Box 97, Clarinda, Iowa

MAKE HENS LAY

By feeding raw bone. Its egg-producing value is four
times that of grain. Eggs more fertile, chicks more
vigorous, broilers earlier, fowls heavier,
profits larger.

MANN'S LATEST MODEL Bone Cutter

Cuts all bone with adhering meat and
gristle. Never clogs. 10 Days' Free Trial.
No money in advance.

Send Today for Free Book.

F. W. Mann Co., Box 37, Milford, Mass.



Greider's Fine Catalogue

and calendar of pure-bred poultry for 1913, large,
many pages of poultry facts, different breeds in natural
colors, 70 varieties illustrated and described. Incu-
bators and brooders, low price of stock and eggs for
hatching. A perfect guide to all poultry raisers. Send
10c for this noted book.

B. E. GREIDER, Box 141, Rheems, Pa.



Mrs. M. J. Clifton
of Oklahoma



Mr. F. E. Bennett
of Ohio



Mrs. Laura J. Clark
of Illinois



Mr. Geo. W. Black
of Indiana



Mrs. F. H. Osman
of Ohio



"Tycos Cup"



Jim Rohan, Pres.

Don't Be Satisfied With Anything Less Than Championship Hatches!

Let Jim Rohan and His World's Champions
Tell You How To Get Them Every Time

SEND me your name and address on a postal. I want to mail you my World's Championship Hatching Facts. I want to tell you how you can get championship hatches—how you can beat *every other incubator* in your neighborhood. I want to tell you how you can make the *most money*, at *least expense*, with *least effort*. I want to tell you how my champions (shown above) get 100 per cent hatches and how they raise their chicks. I will tell you how and why my Belle City won six world's championships against machines costing from two to five times *more*. And I'll quote you a price that will *surprise you*—the lowest price you ever heard of, for the incubator that has established an unequalled record for perfect hatching. Won't you write me a postal? The facts, proofs, and information I'll send will guide you *right* in making the wisest selection of an incubator and brooder. My

World's Champion Belle City The 6-Time Winner

is making big money for 195,720 other folks, under all conditions. I want to send you letters from hundreds of them—tell you the reasons *why* my customers are my *friends*. I want to tell you exactly how my World's Champion Belle City is made—how I have embodied in *everything* that makes a hatcher *successful*. I want to tell you about my famous double walled hot-water brooders guaranteed to raise the chicks—all about my manufacturing, selling and shipping plan that makes my remarkably low price possible. I'll show you why you never before could get such *sure* profit-makers for so little money.

Write Me a Postal

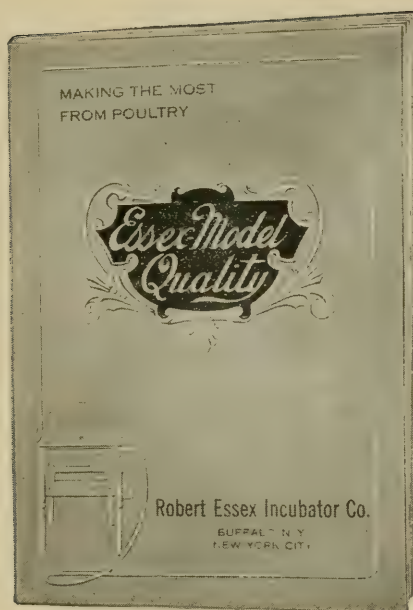
Just say "Send World's Championship Hatching Facts." It's free. I'll quote you my lowest price, freight prepaid. I'll tell you *how* you can have 1, 2 or 3 months home test of a World's Championship Belle City at my risk—how I protect you by my personal 10 year guarantee. I'll send you all these sensational facts if you just write me a postal. Do it *now*. Jim Rohan, Pres.



Belle City Incubator Co., Box 69 Racine, Wis.

A Bright New Book of 180 Pages for 1913

Telling the Plain Truth about BURPEE-QUALITY SEEDS, is mailed Free of Cost to Gardeners everywhere upon Application to
W. ATLEE BURPEE & CO., Burpee Buildings, Philadelphia



This Book is Free

“Making the Most from Poultry”

This Book is Free

It contains Five Chapters on Poultry Keeping written by ROBERT ESSEX himself after a Quarter Century's experience. Here are the Chapters:

- “Making the Most from Poultry”
- “When You Start—Start Right”
- “Health and Disease in Poultry”
- “How Money is Made from Standard-breds”
- “How to Get More Profit from Farm Hens”

This Free Book Also Contains

30 PHOTOGRAPHS OF POULTRY HOUSES

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VOL. XV. FEB. 15, 1918 NO. 4

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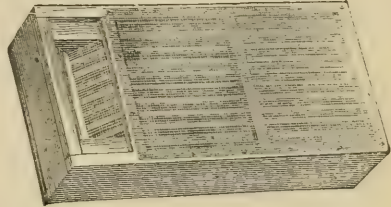
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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and en-

tirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8; beeswax, 30.

Boston, Feb. 7.

BLAKE-LEE CO.

DENVER.—We quote comb honey in a jobbing way at the following figures: No. 1, \$3.05; choice, \$2.90; No. 2, \$2.70. Extracted honey, white, 9; light amber, 8; strained, 6½ to 7. We pay 26 in cash and 28 in trade for clean yellow beeswax delivered here. THE COLORADO HONEY-PRODUCERS' ASSOCIATION. Denver, Feb. 6. FRANK RAUCHFUSS, Manager.

INDIANAPOLIS.—Fancy white sells at 18 in ten-case lots; No. 1 white 1 ct. less; amber comb is in slow demand and at lower prices. Best extracted sells at 11 to 12 in five-gallon cans. There is an excessive demand for comb honey, but very little is now being offered by producers. Beeswax is in good demand, and producers are being paid 30 cts.

Indianapolis, Feb. 7.

WALTER S. POWDER.

ST. LOUIS.—The honey market is in the same state as reported in ours of January 18. The trade is small on comb honey as well as extracted, and more or less nominal. We quote fancy white at 16 to 17; No. 2 white at 15; light amber at 13 to 14; dark, 9 to 11; by the case, fancy white at \$3.65 to \$3.75; No. 2, \$3.40 to \$3.50; amber, \$2.75 to \$3.25, according to the quality; dark, \$2.40 to \$2.50. Broken and leaking honey sells for less. Extracted, Southern, in barrels and half-barrels, 7 cents for light amber; dark, 6 to 6½; in five-gallon cans, one-half cent higher. California, Utah, and Colorado honey is quotable at 9 to 9½; light amber, 8½, all in five-gallon cans. Beeswax is in good demand at 30 cents for prime; inferior and impure sells for less.

St. Louis, Feb. 4. R. HARTMANN PRODUCE CO.

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Our new catalog will be out, probably, before the first of February. If you are not on our mailing list, send us a postal-card request for this catalog, and it will be mailed as soon as they come from the printers. In the mean time you may order from the 1912 catalog. If you haven't one on file, a copy will be mailed immediately on request.

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SCHENECTADY.—There is a very small stock of comb honey on our market, with prices unchanged. White extracted, plentiful, with demand light. Schenectady, Jan. 21. CHAS. MACCULLOCH.

BUFFALO.—Stock of honey in this market is small; trade is not taking very much. At the rate it is selling, there is enough arriving to keep well supplied. We quote fancy white comb, 17 to 18; No. 1, 16 to 17; No. 2, 13 to 14. No buckwheat is in the market. White extracted, 9 to 10; dark, 7 to 8. Beeswax, 28 to 30. Buffalo, Feb. 8. W. C. TOWNSEND.

KANSAS CITY.—The demand for both comb and extracted honey is still light, with light receipts. The supply is good. We quote No. 1 white comb 24-section cases at \$3.10 to \$3.25; No. 2 ditto, \$2.75 to \$3.00; No. 1 amber ditto, \$3.00; No. 2 ditto, \$2.75; extracted white, per pound, 8 to 8½; extracted amber, 7 to 8. Beeswax, per pound, 25 to 28. C. C. CLEMONS PRODUCE CO. Kansas City, Mo., Jan. 20.

LIVERPOOL.—No sales of California honey, but \$9.95 to \$10.20 per cwt. quoted. Retail sales of Jamaica, \$6.72 to \$7.44 is quoted. About 120 barrels of Chilian sold at \$6.24; No pile, \$6.48; pile 3, \$6.96; pile 2, \$7.44; pile 1, \$8.10. There is good enquiry for new crop for shipment at \$5.88 per cwt., c. i. l., average pile 3. Stocks not yet available. Beeswax, 13 bags of Chilian sold at \$34.62 to \$38.88 cwt. Market is quiet but steady. Liverpool, Feb. 1. TAYLOR & Co.

ZANESVILLE.—There is not much change in the honey situation since last report. Market is very quiet, but prices are about stationary. Best grades of white comb are quoted at 18 to 19 in one or two case lots; larger quantities at correspondingly lower prices. Best white extracted, 10 to 11. Producers receive for beeswax 28 cts. cash, 30 in trade. Wholesale market, 38 to 45, according to quantity and quality. Zanesville, O., Feb. 7. EDMUND W. PEIRCE.

CINCINNATI.—The demand for honey at the present time is rather quiet, and we do not look for a change until about the middle of this month. However, we quote fancy double-decker comb honey at \$3.75 to \$4.00 a case; fancy extracted honey in 60-lb. cans at 9 to 10; amber extracted in barrels at from 6½ to 8, according to the quality and quantity purchased. The above are our selling prices, and not what we are paying. For strictly choice bright yellow beeswax we are paying from 28 to 30 cts. delivered here. Cincinnati, Feb. 4. THE FRED W. MUTH CO.

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Many of my friends are calling my attention to the luxuriant sod of white clover which now covers our central States; and this feature, with the fact that bees went into winter quarters strong and with an abundance of wholesome stores, would indicate that this is going to be a piping good season for the wideawake bee-keeper. With these conditions in view I have, as usual, prepared myself with a very complete stock of the finest and latest equipments for those who are interested in the bee industry. Hives in all their different patterns and combinations; the Buckeye double-walled hive, Danzenbaker hives, regular dovetailed hives, and all equipped with supers of any design that may best suit your requirements. Sections, comb foundation, smokers, veils, and honey and wax extractors—everything required in the apiary; and the goods are here, so that you get prompt returns after placing your order here. To those who have not dealt here during the past twenty-four years I wish to explain that the goods handled are manufactured by The A. I. Root Co., and the kind that are in use by the most progressive everywhere, and my prices are the factory schedule, whether you require one hive or one hundred. If you've planned to place your order elsewhere I'd be grateful if you would submit a list of goods wanted for an estimate, and this would place you under no obligations whatever.

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Walter S. Pouder, Indianapolis, Ind.

859 Massachusetts Avenue

FEBRUARY

The Month of Preparation...

This is, perhaps, the most convenient month for the beekeeper to prepare for the coming season. The fall work is done, and the spring work still a future consideration, while the weather for some weeks yet is likely to be such as to prevent all but the necessary outdoor work. Now is the time to take an inventory of supplies on hand, and, with the aid of the PEIRCE Catalog, make up an estimate of what will be required for the busy bee season. Send in a list of what you think you will need, and you will receive by early mail a statement of the cost. Get your supplies now and have hives nailed up and painted, and every thing ready for the good harvest ahead.

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Any of these books on which postage is not given will be forwarded by mail postpaid, on receipt of price. As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

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| Bee-keeping by Twentieth-century Methods, by J. E. Hand..... 50

The author shows not only how to control swarming, but how to treat foul brood without shaking, and discusses in a comprehensive way many other down-to-date apicultural problems and their solutions.

MISCELLANEOUS HAND-BOOKS.

5 | A B C of Carp Culture, by Geo. Finley 25

7 | A B C of Potato Culture, Terry** New edition, revised & enlarged; paper, 50c; cloth, 75c, mail 85c. This is T. B. Terry's first and most masterly work. It has really made a revolution in potato-growing, and has been reprinted in several foreign languages. By getting the ground in proper condition to grow great crops of clover, and turning this under, Terry succeeded, not only in getting more potatoes, but even better ones, and in producing them at less expense also, than by any plan or system be-

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fore the time he began his experiments in 1885. The book has already passed through three editions of many thousands. It not only includes potato-growing in the United States, but in Bermuda, the Island of Jersey, and other warmer parts of the world where "new potatoes" are raised for the express purpose of getting the high prices in the cities during January, February, and March. The book also gives special attention to the different and best methods for preserving and keeping seed potatoes in the very best condition to plant in all these different localities.

5 | A B C of Strawberry Culture,** by T. B. Terry..
New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.

After Terry's potato-book had obtained such a kind reception from farmers, market-gardeners, and others, he was induced to give his plan of growing strawberries, as he did potatoes, by plowing under great crops of clover, and, like the potato-book, his writings gave a new impetus to strawberry-growing; in fact, some of his pupils declare that, aside from the picking, they can grow strawberries almost as cheaply per bushel as potatoes. By following Terry's teachings, thousands of people have not only been able to give their families but the whole wide world better strawberries, and more of them, than they ever saw before.

6 | Asparagus Culture..... 40

6 | Alfalfa Culture..... 40

8 | Barn Plans and Out-buildings*..... 90

2 | Celery for Profit, by T. Greiner**..... 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

10 | Fruit Harvesting, Storing, Marketing, etc..... 75

It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.

| Farming with Green Manures, postpaid**..... 90

This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.

7 | Farm, Gardening, and Seed-growing*..... 90

10 | Fuller's Grape Culturist**.....1 15

5 | Garden and Farm Topics, Henderson**..... 60

12 | Gardening for Pleasure, Henderson*.....1 10

While "Gardening for Profit" is written with a view of making gardening pay, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price \$2.00.)

12 | Gardening for Profit**.....1 10

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts. (Retail price \$2.00.)

8 | Gardening for Young and Old, Harris**..... 90

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter

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Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants..... 20

This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft... 1 15**

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft..... 1 15**

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper*..... 20**5 | Gregory on Squashes, paper*..... 20****5 | Gregory on Onions, paper*..... 20**

The above three books; by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05**5 | Home Pork-making; 125 pages, illustrated..... 40**

I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15 | How to Make the Garden Pay..... 1 35**

By T. Greiner. Those who are interested in hot-beds, cold-frames, cold green-houses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price \$2.00.

10 | How to Keep Well and Live Long..... 90

The above book by T. B. Terry is, in my opinion, destined to relieve more pain, sickness, and death than any other book in the whole world that has ever come to my knowledge. This is pretty strong language, I admit; but since Mr. Terry commenced, years ago, to urge the importance of pure air, pure water, and a simple diet of good simple food in moderate quantities, the whole wide world, doctors included, seems to be gradually falling in with him. Of course, other good and wise men commenced a similar crusade for better health long before Terry did; but he seems to have a happy faculty of getting hold of people and keeping their attention. After you once start in with the book you will be pretty sure to read it to the end, and you will ever after be a better and a happier man or woman for having read it. We have a special low price for clubbing with GLEANINGS—that is, both for \$1.50. If you have already paid for GLEANINGS a year or more in advance you can have the book for 75 cents postpaid. Since it first came out, only a short time ago, we have sold nearly 1000 copies.

3 | Maple Sugar and the Sugar-bush..... 25****5 | Manures; How to Make and How to Use Them; in paper covers..... 30****6 | The same in cloth covers..... 65****5 | Nut Cultivist, postpaid..... 1 25****3 | Onions for Profit**..... 40**

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and Even if one is not particularly interested in the busi-

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ness, almost any person who picks up Greiner's books will like to read them through.

8 | Practical Floriculture, Henderson*..... 1 10**10 | Small-Fruit Cultivist, Fuller..... 75****2 | Experiments in Farming. By Waldo F. Brown. 08**

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

10 | Our Farming, by T. B. Terry..... 75****| Same, paper cover, postpaid..... 50**

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10 | Talks on Manures*..... 1 35

By Joseph Harris. Written conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

10 | The Dollar Hen..... 90

The above book will be clubbed with GLEANINGS for one year at \$1.50; or if you have already subscribed a year or more in advance you can have the book postpaid for 75 cents.

My opinion is, that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up-to-date, and still fewer that pitch right into the superstitions and humbugs now scattered all through our poultry books and journals.

5 | The New Rhubarb Culture..... 40**

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5 | Tile Drainage, by W. I. Chamberlain..... 35

Fully illustrated, containing everything of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 | Tomato Culture..... 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

8 | What to Do, and How to be Happy while Doing It..... 65

The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth.

8 | Same, paper covers..... 40

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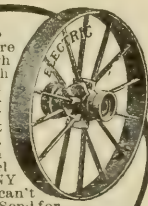
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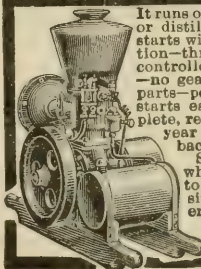
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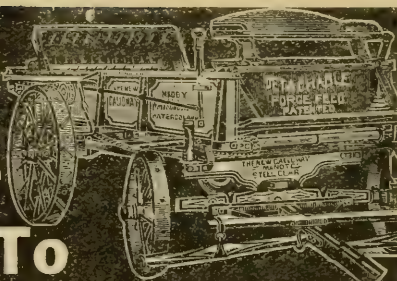


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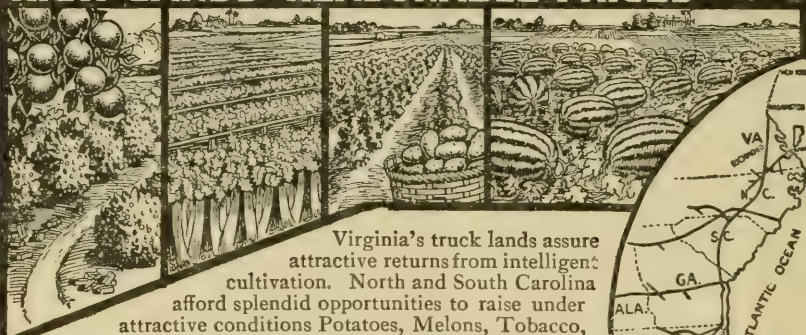
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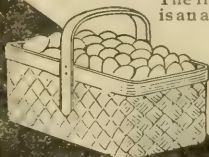
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T. B. BOWNS, JR., Kerens, Tex.

WANTED.—50 or more colonies good healthy bees, in good locations for early and late crop of honey. Give cash price, etc. R. S. BECKTEL, Rifle, Col.

WANTED.—Bees. Could, at fair price, take a car-load of bees in the spring; prefer middle or southern States. Address, giving particulars,
R. F. HOLTERMANN, Brantford, Ontario, Canada.

CARLOAD BEES WANTED.—300 colonies bees for spring delivery, in good condition and no disease. Must be in ten-frame brood-chambers, no bottoms or covers. We furnish both top and bottom shipping-screens. State all particulars and price in first letter.
THE LOUIS H. SCHOLL APIARIES,
New Braunfels, Tex.

HELP WANTED

WANTED.—A single man, thoroughly competent to handle apiary for comb honey and to assist on stock farm. Permanent work for right man.
W. P. SMITH, Artesia, Miss.

WANTED.—Reliable man of good habits for season of 1913, to work with bees and on farm. Use automobile for out-wards. State age, experience, and wages.
N. L. STEVENS, Moravia, N. Y.

I could take two or three young men of good clean habits, to learn beekeeping during the season of 1913; crop last year 45,000 lbs. Board free, and something more if we both do well.
R. F. HOLTERMANN, Brantford, Ontario, Canada.

WANTED.—A queen-breeder and honey-producer, March 1 to Nov. 1. Give age, experience, and salary expected, in first letter. This is a good position for an unmarried man to get an extensive experience.
W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

ASSISTANTS WANTED.—Good chance for right kind of sober, energetic young men in our extensive apiary work, to begin right away. State wages expected, and other particulars, in first letter.
THE LOUIS H. SCHOLL APIARIES,
New Braunfels, Tex.

POULTRY

White Wyandotte Cockerels, \$2.00 up.
L. A. FERRIS, Cleveland, N. Y.

"Eureka" winter cases and W. R. eggs my specialties. Circular free.
B. T. BOSSERMAN, Williamstown, O.

Buttercups and Kellerstraus Orpingtons at bargain prices if taken soon.
CLAUD IRONS, Linesville, Pa.

Rose Comb White Leghorns, bred up in the purple. Eggs, 15, \$1.00; \$5.00 per 100.
LUTHER DAVIS, Box 2, Clarksville, Clinton Co., O.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free.
LEVI STUMB, Richland Center, Pa.

FOR SALE.—S. C. Rhode Island Red, eggs and chicks; chicks, \$10 to \$25 per 100. Eggs, \$5.00 to \$12.50 per 100. Satisfaction guaranteed.
C. H. ZURBURG, Topeka, Ill.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Barred Rocks, Aristocrat Strain. Winners at all leading shows, both meetings; 200 fine pullets and 250 fine cockerels. These cockerels will improve your flock tenfold the first season.
W. G. GILMORE, Farmland, Ind.

INDIAN RUNNER DUCKS

Snow-white Indian Runner ducks; handsome and hardy; Fishel strain direct. Eggs for sale.
F. J. ARMSTRONG, Nevada, Ohio.

Select thoroughbred Indian Runner ducks, white and fawn. Eggs, \$1.00 per dozen; \$7.00 per 100.
J. C. WHEELER, 921 Austin Boulevard, Oak Park, Ill.

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.
KENT JENNINGS, Mt. Gilead, O.

FOR SALE.—Pure White Indian Runner ducks, drakes and eggs. Pure-white eggs guaranteed. From duck laying 110 eggs in 120 days. Free copy of "The Indian Runner Duck Book" by Valentine with each order. APPLECROFT, South Manchester, Ct.

Pure Spencer Strain White Indian Runner ducks. Wonderful layers of large, pure-white eggs. Eggs, \$5.00 per 12, \$25.00 per 100. Unsatisfactory hatchings, regardless the cause, replaced at half price.
A. R. WILLIAMS, Winchester, Ind.

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large, pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.
C. O. YOST, Box D, Rt. 4, Winchester, Ind.

Indian Runner Duck Eggs.—A golden opportunity to secure eggs from beautiful birds, and great egg-layers, at a moderate cost; eggs, 15, \$1.00; \$6.00 per 100; eggs from large rich red S. C. R. I. Reds, same price. "How to rear and produce an abundance of eggs from the Twentieth Century Egg-machine" goes with each order. Fertility and safe delivery absolutely guaranteed.
ROBT BIRD, Pinckneyville, Ill.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Convention Notices

The Pennsylvania State Beekeepers' Association will meet in Harrisburg, Feb. 25, 26. This will be an important meeting. The legislature will be in session. Every beekeeper should be present. A very interesting program will be served. Don't miss it.
Liverpool, Pa. H. C. KLINGER, Sec.

The Northern Michigan branch of the National Beekeepers' Association holds its next annual meeting at Traverse City, Mich., March 19 and 20, 1913. Headquarters and meeting place will be at Hotel Whiting. A good program will be prepared, and we hope for an excellent meeting. You are invited.
East Jordan, Mich. IRA D. BARTLETT, Sec.

The Jefferson and St. Lawrence Co. Beekeepers' Societies will hold a joint meeting in the Business Men's rooms, Ogdensburg, N. Y., Thursday and Friday, Feb. 20 and 21. These meetings are held under direction of the Bureau of Farmers' Institutes, New York State Department of Agriculture.

PROGRAM.

THURSDAY, 10:30 A. M.

Address of Welcome, F. C. Hutchins.
Response, A. A. French.
Reports or officers.
Reports of committees.
Call for unfinished business.
New business.
Paying of dues.
Adjournment for dinner.

1:30 P. M.

Best Way of Creating a Home Demand for Honey W. T. Davis
Management of Out-apiaries..... F. C. Hutchins
Fuss and Fun of Beekeeping..... C. Otto Enders
Can Honey-producers do without the Jobber?
C. J. Cady, Geo. B. Howe

Discussion.
Question-box.
Adjournment.

7:30 P. M.

Best Methods of Selling honey..... C. Otto Enders
Bees, Poultry, and Fruit..... A. J. McCoy
Which is the More Profitable—the Production of
Comb or Extracted Honey?..... Geo. B. Howe
Discussion.
Question-box.
Adjournment.

FRIDAY, 10 A. M.

Making the Most of the Home Market. A. A. Daniels
The Poul-brood Situation..... T. B. Rickett
Production of Comb Honey..... Racine Thompson
Production of Extracted Honey..... A. R. Young
Exhibits at Fairs as a Means of Advertising
D. R. Hardy
Can we Develop a Race of Bees which will be

Great Honey-gatherers?.....F. H. Loucks
 Discussion.
 Question-box.
 Adjournment.

1:30 P. M.

The Problem in Wintering Bees....Edgar Elthorp
 Preparing Bees for Winter.....W. W. Hull
 Has the Selling Agency Established by the National
 Organization been a Detriment or a Benefit
 to the Beekeeper?.....Open for discussion
 Question-box.

OFFICERS OF JEFFERSON COUNTY ASSOCIATION.
 President.....A. A. French
 Vice-president.....F. H. Loucks
 Secretary and Treasurer.....Hudson Shaver
 OFFICERS OF ST. LAWRENCE COUNTY ASSOCIATION.
 President.....F. C. Hutchins
 Vice-president.....C. Otto Enders
 Secretary and Treasurer.....Racine Thompson

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

DO NOT LET YOUR BEES STARVE.

We have been experimenting for several years back, and have finally succeeded in making a candy that can be given to bees during mid-winter that we believe to be fully the equal of combs, in large flat pie-plates, 2-lb. size. The "pies" can be laid upside down on top of the frames. The cushions can be put back in place, when the colony will be supplied with stores sufficient to take care of it for a month or two. This candy will not run down over the frames, nor daub the bees, and when placed directly over the cluster will be a guarantee against starvation. We can supply these pie-plates of candy, 2-lb. size, at 35 cts. apiece; 10 for \$3.00; 100 for \$25.00. We do not advise sending out a single cake by mail. We can, however, send a basket of four 2-lb. cakes by parcel post for \$1.25. Postage extra within 150 miles of Medina will be 46 cts.; 300 miles, 57; 600 miles, 68; 1000 miles, 79. If there should be sufficient demand for this candy we can have a supply at each of our branch offices and principal agencies. If you have colonies that are light in stores, and are liable to starve before they can be fed a liquid syrup in the spring, this special bee-candy for winter food will come in very handy. We are using hundreds of cakes of it.

BEES BY THE POUND TO SUPPLY WEAK OR DWINDLING COLONIES IN THE NORTH.

We have made arrangements whereby we can ship bees in pound packages during the month of March, from Appalachicola, Fla., to points in the North. Where the bees are en route longer than five days, and the weather is not severely cold, we can guarantee safe arrival. But in this connection it is but fair to say that bees can not be sent by parcel post—at least as we understand the ruling—and so we shall have to ship by express, at a rate and a half, or a half more than ordinary express. Prices of bees, until further notice, $\frac{1}{2}$ lb., without queen, \$2.00; 1 lb., \$3.00; 2 lbs., \$5.00; 3 lbs., \$6.00. The price of the queen will be extra. Untested queens, to go with bees, will be \$2.00; select untested, \$2.50; tested, \$3.00; select tested, \$4.00. To make up the cost of the package, add to it the cost of the queen. The express on a 1lb. package of bees from Appalachicola to extreme points in the North will not be more than 70 cents, and on a 2-lb., 90 cents. For less distances the expressage would be less. The express companies will soon make up a new schedule of rates; and when they do, it is safe to conclude that they will meet the new rates of parcel post. They have always met the postal rates before, and what they have done before they will do again.

We hope, before another issue, to have arrangements made so we can begin shipping to points in the middle West and far West. Announcements will be made later.

While our prices on bees may seem to be high, it should be remembered that we guarantee first-class pure Italian stock and safe arrival under the conditions named above.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0121, $2\frac{1}{2}$ x 10-inch heavy hexagonal brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price \$8.00.

No. 0139, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0152, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, extra good for regular-width super foundation. Price \$12.00.

No. 0153, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, $2\frac{1}{2}$ x 6 extra-thin-super mill, fair. Price \$10.00.

No. 0157, $2\frac{1}{2}$ x 6, thin-super mill, in good condition. Price \$12.00.

No. 0160, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, in good condition. Price \$12.00.

No. 0164, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0165, $2\frac{1}{2}$ x 6 hexagonal extra-thin-super mill, in fair condition. Price \$11.00.

No. 0166, $2\frac{1}{2}$ x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0167, $2\frac{1}{2}$ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0176, $2\frac{1}{2}$ x 6 extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0182, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, very good condition. Price \$20.00.

No. 0183, $2\frac{1}{2}$ x 6 hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0187, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0188, 2 x 10 round-cell medium-brood mill, in good condition. Price \$14.00.

No. 0189, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill, in fine condition. Price \$18.00.

No. 0190, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill, in good condition. Price \$18.00.

No. 0191, 2 x 10 round-cell Pelham mill in good condition for this kind of mill. The bases of the cells are not natural shape, but the walls are regular. Price \$7.00. Sample mailed free if interested.

No. 0193, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill; very good condition. Price \$18.00.

No. 0195, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill, in good condition. Price \$18.00.

No. 0197, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill in very good condition. Price \$20.00.

No. 0199, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill, in very good condition. Price \$20.00.

No. 0200, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill, in good condition. Price \$18.00.

No. 0201, $2\frac{1}{2}$ x 12 hexagonal medium-brood mill in good condition. Price \$22.00.

No. 0202, $2\frac{1}{2}$ x 10 hexagonal medium-brood mill, in good condition. Price \$18.00.

The A. I. Root Co.:—

The first of last June I purchased of you a three-frame nucleus and an observation hive, and at that time you requested me to advise you what success I had with the outfit. My bees entered the super on the first of August, and up to the present time I have obtained 56 lbs. of comb honey, and the little chaps are still hard at work. Besides this I should judge there was from 30 to 40 lbs. of honey in the brood-chamber. It seems to me that this is a good showing. There is very little farming here—no buckwheat nor basswood, and we are on a peninsula not over $1\frac{1}{2}$ miles wide.

Woods Hole, Mass., Sept. 20. W. K. BUTLER.

ESTABLISHED 1891

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan and Cherry Sts.**San Antonio, Texas**

Factory and Warehouse.

To Our Friends and Patrons

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as all those engaged in the business.

Owing to the constantly increasing demand for comb foundation and beekeepers' supplies, we have again been compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past year, our sales having aggregated approximately \$100,000.00.

Although it has been found a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the 5 $\frac{3}{8}$ -inch frames, same as described in our catalog, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the 10-frame hives.

Shortly before the death of Mr. Mayfield Mr. Udo Toepperwein sold his interest to Messrs. R. W. Hearne and B. L. Raborn, well-known business men of San Antonio. The retirement of the older members of the company will in no way change the policies of the new management except to increase materially the capital with the view of carrying a large stock of supplies. Mr. Morris, who has been practically the manager of the Toepperwein & Mayfield Co., continues with the new management.

It is the intention of the new management to increase materially the capital of the company, with the view of carrying a stock of supplies that will meet all the requirements of the trade. This will enable us to effect prompt shipments at all times, and thus avoid any delay and annoyance to customers on account of shortage of stock.

It will be our endeavor to accord our customers all possible courtesies and consideration in any matters that may arise. Mistakes will occur at times, as is only natural, and we only ask that they be brought to our attention so that they may be rectified. Our customers may be assured of the best quality of goods at as reasonable prices as are consistent with business methods.

Our new catalog on request. Address

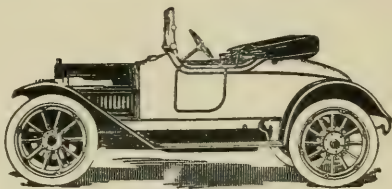
TOEPPERWEIN & MAYFIELD CO., - San Antonio, Texas.

A Really Practical Car!

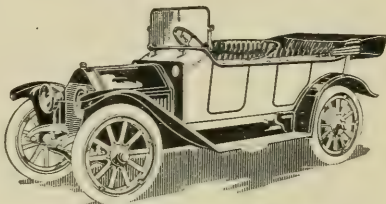
A Cartercar will answer every possible requirement you could make of a motor car. It is adapted for all kinds of driving—in all kinds of weather.

The control is by one lever—you have an unlimited number of speeds—and the Friction Transmission has eliminated all the usual troubles. Motor is cranked and lamps operated by electricity.

Your Cartercar will easily climb a 50 per cent grade—and will easily run through sand and mud which are impossible for any gear car. Then, too, this gearless transmission prevents all jerks and jars, which means the utmost comfort, and about twice the mileage from your tires. The Cartercar is simple, reliable and efficient—and these features you certainly want in your car. Write for catalog.



Model 5B--Equipped, \$1600



Model 5A--Equipped, \$1700

Cartercar Company

Pontiac, Michigan

Branches:

New York, Chicago, Detroit, Kansas City, Atlanta

Two Other Models
Coupe and Sedan

Bill Galloway Says: "I'll Give You 3 Months Power FREE"



I'll let you take any engine I've got and use it on your own farm for thirty, sixty

or even ninety days absolutely free. How's that for an offer? I'm going to give every man in the country who has been thinking of getting an engine a chance to try the Galloway absolutely, entirely at my risk. I want you to take a Galloway and let it work for you. Put it up against the hardest tests you can think of. Go around to your neighbors; ask them about their engines. Find out what their engines are doing, how much trouble they are giving and how much they cost.

Then go home and compare what they've told you with what you actually know about your Galloway. Take all the time you want to make up your mind. I won't hurry you. If a month isn't enough, let me know and I'll let you keep it a month or two longer. Then if you can't honestly say that you believe the Galloway is the best engine in the world at any price just send it right back to me. I'll pay the freight both ways. You won't be out a cent.

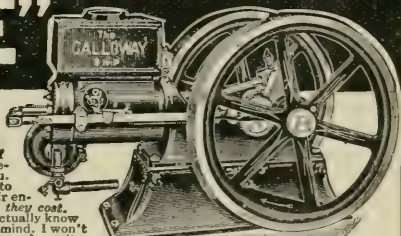
Keep the \$50 to \$300 You Save If you want to keep the Galloway I'll make you a price that not one manufacturer or dealer in America would even think of meeting. You keep the \$50 to \$300 that I save you right in your own pocket. I'll sell you a Galloway for just what it costs to make with only one small factory profit added. No wholesaler's, jobber's, dealer's, salesman's or any middleman's profit of any kind.

Free Service Bureau! The services of my staff of engine experts are always at your command free. They will tell you how to judge an engine, how to select the one best type for your purposes, how to handle and use it to your best advantage—in fact, they'll help you solve all your engine troubles without any cost or obligation whatever.

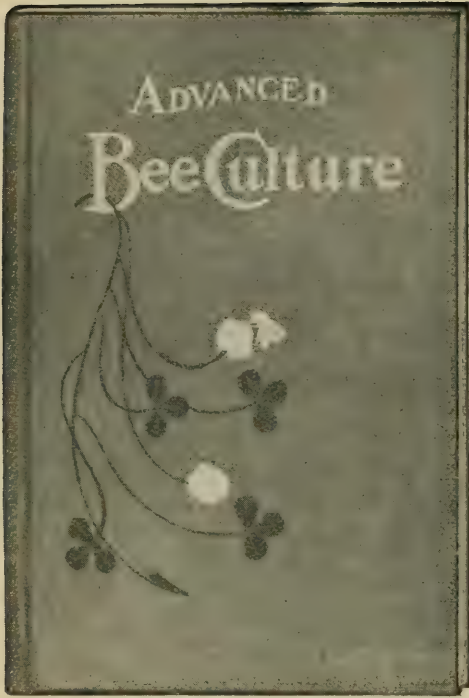
Get My 1913 Proposition The very best offer I have ever made is waiting for you. I want to tell you how you may get a genuine Galloway engine partly or entirely without cost. No canvassing -- no soliciting -- just the fairest and most liberal co-operative offer any body ever made.

FREE Engine Book Now don't wait—just send me a postal or letter now. I'll mail you my big Engine Book and full particulars of my wonderful 1913 Special Proposition FREE. Write me RIGHT NOW.

Wm. Galloway, President WM. GALLOWAY COMPANY, 1685 Galloway Station, Waterloo, Iowa
We carry Engines in stock at Chicago, Kansas City, Council Bluffs, Minneapolis and Winnipeg.



13.4 H. P. to 15 H. P.



The untimely death on May 30, 1911, of Mr. W. Z. Hutchinson, author of

Advanced Bee Culture

marked the passing of one of the most brilliant writers who have ever championed the cause of the honey-bee. . . . Perhaps no better tribute to this talented man could be given than that contained in the following paragraph from a testimonial article on Mr. Hutchinson's life by Prof. A. J. Cook, in *Gleanings*:

"No one could know him and his work without convincing proof that he stood in the very front ranks of our beekeeping fraternity. His quick intellect, coupled with his close attention to details, won for him, at the very start, phenomenal success as a queen-breeder. To this, apiculture owes its great good fortune in securing his life-long service in its development. He was temperamentally exact and methodical, transparently honest, and if I were to select one word to characterize our brother it would be genuineness. He was delightfully companionable, and always alert for any new idea or suggestion touching the interests of the work to which he was so entirely devoted. His quick apprehension, and terse clear-cut style as a writer, made him a most reliable exponent of all that was latest and best in the theory and practice of his beloved art."

Nearly 500 Subjects Pertinent to Modern Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth. A volume whose appearance and unquestionable worth justify entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

Most fortunate for all beekeepers is the fact that Mr. Hutchinson's life was spared just beyond the point when he had completed his reading and correction of the editorial proofs of the new edition of **ADVANCED BEE CULTURE**. Only a few short days after an editorial by Mr. E. R. Root, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book, had appeared, the call came, and this sterling, upright man, whom everybody loved, was taken home. Read what Mr. Root has to say of Mr. Hutchinson's book:

As a writer on bees Mr. Hutchinson has few equals. For clearness and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and useful from an extended discussion is intuitive. The last edition of "*Advanced Bee Culture*," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by the master of the art of boiling down discussions. I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced beekeeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it up in connection with some other work like the "*A B C and X Y Z of Bee Culture*," or any text-book designed especially for the beginner class.

\$1.50 Buys a Two-dollar Value

ADVANCED BEE CULTURE costs \$1.00 per copy. *GLEANINGS IN BEE CULTURE* (semi-monthly)—known and read by beekeepers throughout the world—\$1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination—the book here described, and *GLEANINGS* one year, both for \$1.50. It is a value you will very seldom find—really it is a good \$2.00 worth for \$1.50.

Foreign postage, 60 cents extra; Canadian postage, 30 cents extra.

Vol. 41 No. 5
March 1, 1913

Gleanings in Bee Culture



VOL. XLI. MARCH 1, 1913, NO. 5.

Some of our subscribers may find it convenient to club their magazine orders, and we shall be glad to handle such for them. Below we give a few of our special clubbing offers. If you are especially interested in a clubbing rate on some other magazine not mentioned, write for price.

GLEANINGS IN BEE CULTURE, YOUTH'S COMPANION,	1 year \$1.00, 1 year \$2.00,	Both for \$2.40.
GLEANINGS IN BEE CULTURE, THE GARDEN MAGAZINE, Garden Profits, 250-page book,	1 year \$1.00, 1 year \$1.50,	All for \$2.00.
GLEANINGS IN BEE CULTURE, PICTORIAL REVIEW,	1 year \$1.00, 1 year \$1.00,	Both for \$1.50.
GLEANINGS IN BEE CULTURE, The WEEKLY ENQUIRER (Cincinnati),	1 year \$1.00, 1 year \$1.00,	Both for \$1.40.
GLEANINGS IN BEE CULTURE, WEEKLY INTER OCEAN (Chicago),	1 year \$1.00, 1 year \$1.00,	Both for \$1.25.
GLEANINGS IN BEE CULTURE, THE FRUIT-GROWER,	1 year \$1.00, 1 year \$1.00,	Both for \$1.50.
GLEANINGS IN BEE CULTURE, BETTER FRUIT,	1 year \$1.00, 1 year \$1.00,	Both for \$1.50.
GLEANINGS IN BEE CULTURE, AMERICAN POULTRY JOURNAL,	1 year \$1.00, 1 year \$1.00,	Both for \$1.50.
GLEANINGS IN BEE CULTURE, FARM POULTRY,	1 year \$1.00, 1 year .50,	Both for \$1.15.
GLEANINGS IN BEE CULTURE, FARM JOURNAL,	1 year \$1.00, 5 years \$1.00,	Both for \$1.25.

Because of additional postage required, these offers do not apply in Canada nor foreign countries.

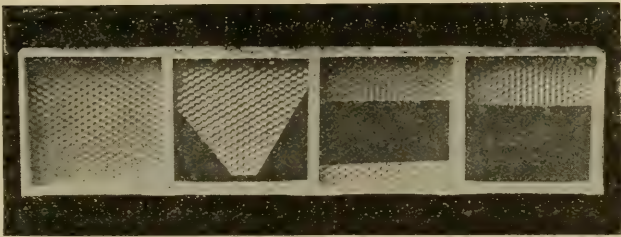
All orders handled very promptly, and at a minimum of trouble to yourself. Subscriptions to begin with the first possible issue unless otherwise stated.

The A. I. Root Company, Medina, Ohio

“falcon” Foundation

Made in Our Plant at Falconer, N. Y.

From the sweetest and purest beeswax that can be obtained. No old stock—made daily by our own superior methods. Falcon foundation is coming in more constant use every year, and has proved itself to be most readily accepted by the bees.



OTHER GOODS—Double - grooved Hoffman brood-frames as well as sections will be needed for spring use. As it takes a lot of time to put up frames and sections with starters or full sheets, it would be well to look up your requirements. . . It will give you ample time by ordering now.

Light Standard Brood,	1 lb., 58c; 5 lbs., 57c	Light Section	1 lb., 65c; 5 lbs., 64c
Extra Light Standard Brood	1 lb., 60c; 5 lbs., 59c	Extra Light Section	1 lb., 70c; 5 lbs., 67c
Special prices quoted on large quantities.			

Write for Samples of Our Foundation and Red Catalog.
All Goods Guaranteed. . . A Trial will Convince You.

Dealers Everywhere.

The W. T. Falconer Mfg. Company.

Where the good beehives come from

Falconer, New York

“Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time” Send for Annual Catalog which will tell you who is your nearest Distributer.
It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard G. B. Lewis Company, Watertown, Wis.



Established 1885

We carry an up-to-date line of

BEEKEEPERS' SUPPLIES

At this season of the year we give the usual customary early-order discounts.

If you can figure your wants now to buy early and get the benefit of lowest prices, don't fail to consult us.

We have a line of supplies that are just superb—nothing to fear as to quality. Send for our large catalog. It's free. Gives much information for beginners. See page 60.

Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
HIGH HILL, MO.

DO YOU LOVE SWEETS?

RALPH WALDO EMERSON DID

He said you can attain to royalty by loving sweets.

“He who knows what SWEETS are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man.”

“HOW to come at these?”

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*.

Want to know how?

Send \$1.00 for a year's subscription to

The Guide to Nature
Arcadia, Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, “a bee-man” and a naturalist.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and en-

tirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8; beeswax, 30.

Boston, Feb. 22.

BLAKE-LEE CO.

INDIANAPOLIS.—Fancy white sells at 18 in ten-case lots; No. 1 white 1 ct. less; amber comb is in slow demand and at lower prices. Best extracted sells at 11 to 12 in five-gallon cans. There is an excessive demand for comb honey, but very little is now being offered by producers. Beeswax is in good demand, and producers are being paid 30 cts.

Indianapolis, Feb. 17.

WALTER S. POWDER.

CINCINNATI.—The demand for comb and extracted honey is light with a good supply. No. 1 white comb honey sells in large lots at \$3.60 per case of 24 sections. There is no demand for off grades. White extracted honey, in 60-pound cans, is selling from 9½ to 10; light amber in barrels, 7 to 7½; in 60-pound cans, 8 to 8½. Beeswax, fair demand, sells at \$33.00 per hundred. The above are our selling prices, not what we are paying.

Cincinnati, Feb. 22.

C. H. W. WEBER & CO.

KANSAS CITY.—The supply of both comb and extracted honey is large, the demand fair. We look for a better movement from now on. We quote No. 1 white comb, 24-section cases, \$3.10 to \$3.25; No. 2 ditto, \$3.00; No. 1 amber ditto, \$3.00; No. 2 ditto, \$2.50 to \$2.75; extracted white, per pound, 8 to 8½; extracted amber, 7 to 7½. Beeswax, 22 to 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, Feb. 14.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

Now, Then, for Your Early Bee-supply Orders!

Send us a list of the Bee Supplies you want.

Our prices will astonish you.

Also send us your old combs.

We will render your wax and save you money.

Write for particulars.

THE FRED W. MUTH CO.

"The Busy Bee Men"

204 Walnut Street

Cincinnati, Ohio

An Active Season Just Ahead

A carload of perfectly new goods is just on hand from the factory. This brings up our assortment so that we can now furnish almost any thing listed in the catalog at once.

Hives should be ordered at once if they are to be ready for spring. Frames, and other inside fixtures too, should be put together now; and as this is a dull season with most of our customers, the work can be done now with no extra expense.

If you are wanting any special goods, orders ought to be in our hands within the next few days. Other cars will be coming from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

Our new catalog is out, and mailing nearly completed. If you are not on our mailing list, send us a postal-card request for this catalog.

If you want to buy in quantities considerably larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line, and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder, the best in the market. Write for our catalog.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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A. I. ROOT

Editor Home Dep't.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. O. Chadwick.

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CINCINNATI.—The market for honey has livened up considerably, and we are selling fancy double-decker comb honey at \$3.75 to \$4.00 a case; fancy extracted honey in 60-lb. cans at 9 to 10 cts. per lb., and amber extracted honey in barrels at from 6½ to 8 cts., according to the quantity and quality purchased. For choice bright yellow beeswax we are paying 30 delivered here; or if taken out in trade we allow 32.

Cincinnati, Feb. 20. THE FRED W. MUTH CO.

CHICAGO.—Comb honey has sold freely during this month, and stocks have been reduced; and if this demand keeps up during the coming month we are of the opinion that the yield of 1912 will be practically all consumed before that of 1913 is in evidence. We think the excellent quality of the honey has been the main factor in the large volume of sales, many retailers saying they have sold more honey this winter than they have for quite a long time, as people would come back for some more of the same kind they had before. Extracted is moving off steadily, and may clean up. Prices on comb have varied, and it is lower by 1 to 2 cts. per lb. than it was in September and October, and it is too late in the season now to expect any advance in price unless the crop is actually about exhausted. Beeswax remains steady at from 30 to 32, according to color and cleanliness.

Chicago, Feb. 17. R. A. BURNETT & CO.

ST. LOUIS.—Since ours of February 4, this market has ruled exceedingly dull on honey, especially the poor grades of extracted, which is quotable one-half cent lower. Comb honey is also neglected, and quotable at the former prevailing prices as follows: Fancy white comb honey, 16 to 17; No. 2, 15; light amber, 13 to 14; dark not wanted. Sales are now more or less made by the case, and we quote fancy white at \$3.65 to \$3.75; No. 2, \$3.40 to \$3.50; amber, \$2.75 to \$3.75, according to quality; dark, if sound and full weight, \$2.40 to \$2.50 per case. Broken, leaking, and honey not well filled, sells at much less. Extracted honey, Southern in barrels and half-barrels, sells at 6½ to 7 for light amber; dark, 6, in five-gallon cans; 7 for light amber, 6 to 6½ for dark. California, Utah, and Colorado honey is quotable at 9 to 9½ cents for very light amber or white, and 8½ for light amber in five-gallon cans. Beeswax is in good demand at 30 cents for prime; inferior and impure sells for less.

St. Louis, Feb. 20. R. HARTMANN PRODUCE CO.

Our Invitation to You

Because of the unquestioned safety for deposits which the Savings Deposit Bank Company affords, and the liberal rate of interest which it pays, a large number of people

Mail Their Savings

to this bank, even though they live at some distance.

We invite you also to avail yourself of the facilities of this strong well-managed institution.

Interest at the rate of 4 per cent per annum is paid on savings accounts.

Write for further information today.

The SAVINGS DEPOSIT BANK COMPANY Medina, Ohio

ASSETS OVER ONE MILLION DOLLARS.

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A paper explaining the merits of these bees: best system of management for comb and extracted honey and other information.

Free for the asking. Beekeepers who buy queens in dozen lots or more should get their orders in dozen lots or more should get their orders booked early. The queen-breeder can then make shipments

more nearly as desired...

Albert G. Hahn Carniolan Queen Breeder Pittstown, N. J.

GET TOP NOTCH PRICES BY USING LEWIS SECTIONS FOR YOUR HONEY AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

Can You HANDLE FORTY APIARIES?

READ THIS LETTER

Say, friend Tyrrell, you have besieged me with letters and cards from the request you made to your readers on page 479. Well, I never saw or heard of such a flood of mail. I never had any idea that you did have so many subscribers before, and, too, many of them write the best letters I believe I ever received. Well, it just did me good to look over them, and I wish you could have been here and gone over them with me.

And now I want to thank you for what you said, and I assure you that as soon as possible I will return the favor, not only to you but your many interesting readers, who have written so many good and cheering letters to me. I declare I don't know just how to express myself over the matter, but I must feel something as a great "big-hearted" fellow feels over a good old-fashioned hand-shaking at the close of a good meeting, when the good spirit is at its best ebb.

J. J. WILDER, Bradentown, Fla.

Subscribe for the "Beekeepers' Review" and read this article. One dollar per year. Fifty cents more for National and Branch membership.

Beginners' Department now established in the "Review," with four contributors to tell you what to do each month, no matter where you live.

The National Beekeepers' Ass'n, Detroit, Michigan

214 Hammond Building

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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We are booking orders for Italian bees in half-pound or pound packages, with or without queens. Write us for prices on quantity you need.

Two Months till Swarming Time--

A hive at your shop is worth ten at the factory---when the swarm is hanging on the limb. Goods purchased now can be made ready for later use. We have them, and they're Root's goods, too. Send for catalog.

M. H. HUNT & SON, LANSING, MICH.

OPPOSITE LAKE SHORE DEPOT

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Satisfaction guaranteed, or your money refunded. Liberal discount for early orders. Special to new customers. Please drop me at once a card for our catalog.

W. H. Freeman, Peebles, Ohio.

BEES AND SUPPLIES

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I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apt. 1, Glen Cove, L. I.

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Southern Agent for The A. I. Root Co.

Save freight by buying near home.
SPRAY PUMPS and CHEMICALS.
Bees and queens for sale.

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Write for catalog. **FACTORY PRICES.**

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INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

"Griggs Saves You Freight"

TOLEDO

"Griggs Saves You Freight"

By the way orders are coming in, it proves that the successful producers are not going to be caught napping. Every indication points to a good honey season which will soon be here.

We have anticipated the demand by getting in a larger stock of ROOT'S GOODS than we have ever carried; every thing new, and orders can be shipped promptly.

Start the season right by sending your orders to Toledo. Catalog free.

Beeswax wanted. Cash or in exchange for supplies

S. J. GRIGGS & CO. . . 26 North Erie Street . . TOLEDO, OHIO



"If Goods are Wanted Quick, Send to Pouder."

Many of my friends are calling my attention to the luxuriant sod of white clover which now covers our central States; and this feature, with the fact that bees went into winter quarters strong and with an abundance of wholesome stores, would indicate that this is going to be a piping good season for the wideawake bee-keeper. With these conditions in view I have, as usual, prepared myself with a very complete stock of the finest and latest equipments for those who are interested in the bee industry. Hives in all their different patterns and combinations; the Buckeye double-walled hive, Danzenbaker hives, regular dovetailed hives, and all equipped with supers of any design that may best suit your requirements. Sections, comb foundation, smokers, veils, and honey and wax extractors—everything required in the apiary; and the goods are here, so that you get prompt returns after placing your order here. To those who have not dealt here during the past twenty-four years I wish to explain that the goods handled are manufactured by The A. I. Root Co., and the kind that are in use by the most progressive everywhere, and my prices are the factory schedule, whether you require one hive or one hundred. If you've planned to place your order elsewhere I'd be grateful if you would submit a list of goods wanted for an estimate, and this would place you under no obligations whatever.

Many of the articles described in my catalog can be delivered by parcels post, and I am devoting special care to this line of business.

If you are in need of more finest honey for local demands I can supply you. Ask for my monthly quotations of the Indianapolis honey market.

I can use more beeswax on a cash or trade basis.

I should like to place my catalog in your hands.

Walter S. Pouder, Indianapolis, Ind.

859 Massachusetts Avenue

MARCH

The last month before the busy season for the beekeeper begins. Unless, with wise forethought, you have already anticipated your wants, you should place your order without delay. New goods by the carload are now coming in; and, though our service is at all times the best, we can serve you now with minimum delay and maximum satisfaction.

The new catalogs have arrived, and are being mailed. You will soon receive one if your name is on our trade list; otherwise you will be supplied on receipt of a postal-card request. Should you desire to order in the mean time, the 1912 catalog may be used. On cash orders in March, 1 per cent discount off catalog prices will be allowed.

Like the beekeeper whose letter follows, you will be pleased with PEIRCE SERVICE and ROOT QUALITY from OHIO'S BEE CENTER.

Mr. E. W. Peirce:—I want to thank you for prompt shipment of my order. It came in good shape.

Yours truly,
ALVA E. MOORE.

Marlinton, W. V., Feb. 22, 1913.

Mr. Moore also sends the name of a friend to whom he wishes the PEIRCE catalog sent. One will gladly be mailed to any beekeeping friend whose address you will be kind enough to give.

E. W. Peirce, Zanesville, O.
136 W. Main St.

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Large QUEEN circular on request.

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Catalog of Apiary Supplies free.

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breeders as high as \$50.00. Send for booklet, and get
the best . . . My breeders produced over 200 pounds
of surplus each last year. Try them and see what
they will do for you.

GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell
you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

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Former subscribers wouldn't recognize it as the same paper.
New subscribers send in letters of commendation every day.

Some of the NEW Features are:

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About six times as many pictures and illustrations.
More interesting reading-matter, and more of it.
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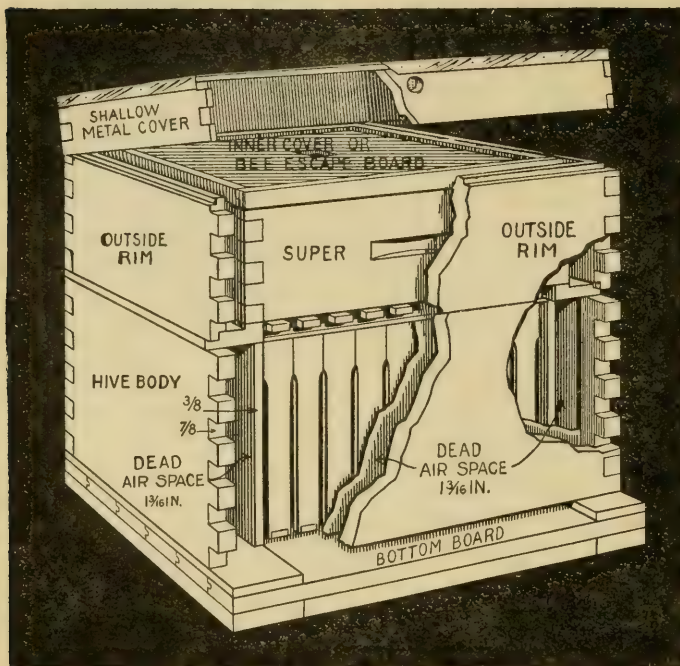
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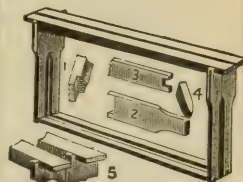
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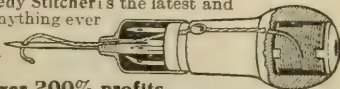
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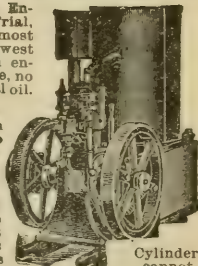
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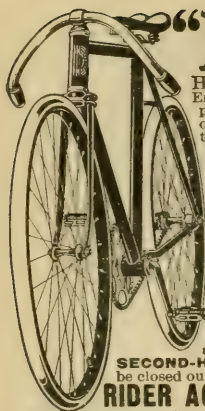
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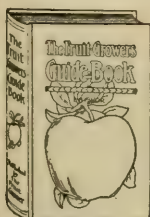
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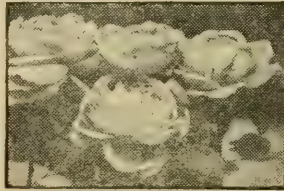
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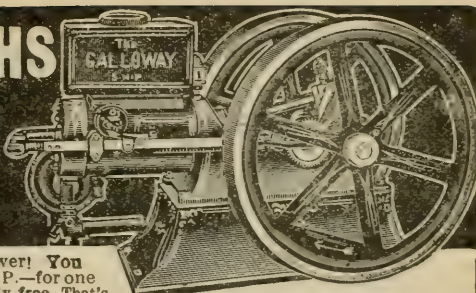
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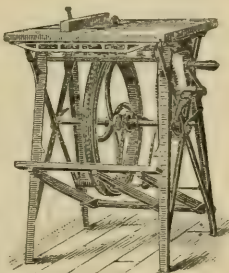
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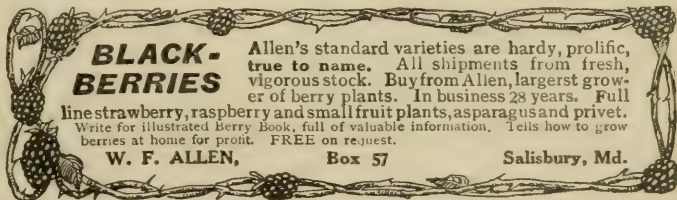
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Book Free! Written by the Johnsons—"home made" and home printed—full of real helpful facts gleaned by the Johnsons from their own practical experience and the experience of over 400,000 Old Trusty customers. Send postal now to

JOHNSON, Incubator Man, Clay Center, Neb.



Miller's "Ideal"—the greatest hatcher that ever came out of a factory. You don't have to be an expert to run it.

able incubator. This year I'm going still further.

I'm Going to Pay the Freight—Give You An Unqualified Guarantee—Include Everything FREE.

When writing, tell me what size incubator you are interested in and I'll send you my **BIG ILLUSTRATED POULTRY BOOK FREE.** Describes Standard Breed Poultry, tells how to become successful and other valuable information. Easily worth \$1.00. Because it contains advertising, you get it FREE. Ask for copy.

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Before buying any kind of an incubator, at any price, from any

body, get my 1913 offer on the IDEAL. Last year I broke the record for low price on efficient, dependable incubator. This year I'm going still further.

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When writing, tell me what size incubator you are interested in and I'll send you my **BIG ILLUSTRATED POULTRY BOOK FREE.** Describes Standard Breed Poultry, tells how to become successful and other valuable information. Easily worth \$1.00. Because it contains advertising, you get it FREE. Ask for copy.

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You Can Earn a Good Living Raising Poultry

Cut down living expenses—raise poultry for your own use and for sale to neighbors. Thousands make money this way with

SUCCESSFUL INCUBATORS SUCCESSFUL BROODERS

Life Producers—Life Preservers Why don't you do the same? Learn how easy it is to start. Booklet "How to Raise 48 out of 50 Chicks"—10c. Catalogue FREE. Write today. Address, Des Moines Incubator Co., 190 Second St., Des Moines, Ia.



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If you read this little "ad" and are not convinced of the quality I am offering at my low price—send me your name on a postal for my "World's Championship Hatching Facts." But you can safely order right now. The U. S. Government is a customer of mine, along with nearly 200,000 others. The Belle City has won Six World's Championships, for people running their first incubators—and it won with 100 per cent hatches. Here are the facts about

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140-Egg Size Only \$7.55

I guarantee my machine to out-hatch all comers, give you a long trial, prove all claims. Why pay more? Why not save money and get in the championship class!

The Belle City has double walls, dead air space all over, double door, copper tank, hot-water heat, self-regulator, "Tycoos" thermometer, egg tester, safety lamp, nursery, high legs. My

Belle City Brooder 140-CHICK

is the only double-wall brooder made, hot water heat, platform, and metal lamp. Price \$4.85

When shipped together I make a special price of \$11.50 for both Incubator and Brooder saving you 90c on the Complete Outfit, freight prepaid, East of Rockies.

Better write today for big Portfolio "Hatching Facts" and get latest information how to make money out of poultry at small expense, or if in a hurry you can order from this advertisement. I guarantee everything as represented or refund money. Address me personally, Jim Rohan, Pres.

\$4.85 140-Chick Brooder



We ship quick from St. Paul, Buffalo, Kansas City or Racine.

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Poultry and egg prices are away up! Big money in 1913 for poultry raisers. Why not add this profitable business to your own? Go at it the right way. Investigate

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World's Standard Equipment. Write today for the greatest free book of the year for poultry men and poultry women. Tells of Cyphers Company methods for best results. 244 pages of richly valuable, practical information. No matter whether you are sure you want to buy an incubator or not, send for this great Free Book Today.

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should get the FREE POULTRY BOOK and Catalogue written by ROBERT ESSEX, well known throughout America. After 25 Years With Poultry. It tells How to Make Most From Eggs and Hens for Market or Show, contains Pictures of 30 Poultry Hatches; tells cost to build; describes AMERICA'S LARGEST LINE OF INCUBATORS AND BROODERS—\$2.25 to \$45 each. Write today. Robert Essex Incubator Co., 81 Henry St., Buffalo, N. Y.

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The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.

We have three of the best Cafes in the City, and prices are reasonable.

Write us for booklet or to make reservation.

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I Will Give You 3 Fine Apple Trees

One each of Delicious, Stayman Winesap, and Jonathan, greatest and best varieties, 3 to 4 ft. trees, cut back to 22 in., ready to plant. Sent free prepaid by Parcel Post, to introduce our great farm magazine, "FRUIT GROWER & FARMER," regular rate \$1 a year. February, Garden and Poultry number, 100 pages, alone worth \$1. Send only 50c, half price, for a full year's trial, and the names of 2 friends interested in farming, and trees will be sent free. Money back if not pleased. Send stamps or coin at my risk. Write quickly before supply is gone.
J. M. IRVINE, Editor, Box 108, St. Joseph, Mo.

HOW TO KEEP BEES

By ANNA BOTSFORD COMSTOCK

THIS is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning bee-keeping by their own effort. Having commenced bee-keeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood. Price \$1.10 postpaid by

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The pamphlets and booklets listed below are of more than ordinary interest.

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The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

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The A. I. Root Co., Medina, Ohio.

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NEW YORK.—The market is practically bare of comb honey of all grades. Some few small odd lots are coming in as yet, and find ready sale at from 14 to 16 for white, and 11 to 13 for dark and amber, according to quality and style of package. The market for extracted honey has been very quiet during the past two months, and we do not see any indications for a better demand, as the supply is more than ample to meet the demand. California light-amber sage, which was reported to be of very short crop at the beginning of the season, and held at high figures, is being offered quite freely with no buyers. West Indian is arriving freely, with very little demand, and prices are declining right along the line. We quote California sage, light-amber, at 7½ to 8; California alfalfa, 6 to 6½, and West Indian at 73 to 75 cts. per gallon.

New York, Feb. 17. HILDRETH & SEGELKEN.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Finest quality of extracted honey.
J. F. MOORE, Tiffin, Ohio.

No. 2 fall comb honey, \$2.50 per case of 24 sections. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Finest extracted water-white alfalfa and amber alfalfa honey in 5, 10, and 60-lb. cans. Samples 10 cents. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Finest quality clover and clover-bass-wood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

We have just received a large shipment of extracted white-clover honey from a prominent producer. This honey has a very heavy body, and was well ripened before it was taken off the hives. We ship it, if preferred, in liquid form without extra charge, in new tin cans holding five gallons each, two cans in a case. Ask for free sample of lot 81, and our price. We have some fine fall amber extracted. An early fall flow caught a producer before he could get his white honey off, so his crop had to be graded as amber. Free sample and the price for asking. Lot No. 69. THE A. I. ROOT CO., Medina, O.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 S. Water St., Chicago.

WANTED.—Comb and extracted honey and beeswax. Write us. HILDRETH & SEGELKEN, New York.

REAL ESTATE

Home of 10 acres, unlimited bee and poultry range—good market; healthiest locality in Texas; \$3000. If you mean business, apply to
A. F. Z., Box 115, Llano, Tex.

FOR SALE.—Bee, chicken, or duck ranch; house, barn, chicken-house, incubator house, incubators, steam-heated brooder-house. Bees, ducks, and chickens. Price \$2500. Terms to suit the buyer.
C. MARTINEIT, Littleton, Col.

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia.
F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

FOR SALE.—Small place with 106 colonies of bees and fixtures in New Scotia, near the large city of Schenectady, one of the most flourishing in the world. The location is a good one for honey—plenty of white and sweet clover; also buckwheat and goldenrod. No other beekeepers near. Address G. H. ADAMS, Spring and Central Aves., Troy, N. Y.

FOR SALE.—Fine eight-room cement-block house, cement basement, electric heat, light, and cooking, fireplace. One acre of ground all fenced, in city limits; street-car, eighty five-year fruit trees (apples, peaches, pears, prunes, plums, and cherries); 200 grapes, strawberries, rose hedge, shade trees, auto and honey house; room for 200 colonies of bees; average \$10.00 net per colony here. Price \$6000. Ask Mr. A. L. Boyden; he saw it.
J. BEN HALL, Twin Falls, Idaho.

FOR SALE

Bees, honey, and beekeepers' supplies.
A. E. BURDICK, Sunnyside, Wash.

A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices.
THOS. LITZ, Osceola Mills, Pa.

Beekeeper, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Root or Falconer bee supplies. Free catalog. Save freight.
G. F. STANTON, Buckingham, Fla.

A bargain—625 Danzenbaker section-holders, \$7.30; Danzenbaker fences, used but once.
JOHN DEMUTH, Pembroke, N. Y.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—50 one-story eight-frame dovetailed hives, nailed and painted, complete with Hoffman frames.
H. C. SHORT, Winchester, O.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—Lot of Ideal fence separators, \$1.00 per 100. Ideal section slats, 70 cts. per 100. Used some, but in good condition.
GEO. H. REA, Reynoldsville, Pa.

Root's goods at Savannah. The logical center for your orders. The quality is unexcelled. Service accurate and prompt. Catalog gladly.
L. W. CROVATT, Box 134, Savannah, Ga.

Bee supplies for all southern Idaho and east Oregon beekeepers, wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest.
C. E. SHRIVER, Boise, Idaho.

FOR SALE.—35 two-story double-walled hives, new Hoffman frames, complete except sections and foundation; fine condition; no disease. Cost \$3.50; my price \$1.50 each, or \$50.00 for the lot.
L. F. HOWDEN, Fillmore, N. Y.

Best No. 1 sections, 1000, \$4.40; 2000, \$8.60; 3000, \$12.60; 5000, \$20.00. No. 2, 50 cts. less; plain, 25 cts. less. White-pine hive, 1½-story, eight-frame, \$1.45; 10-frame, \$1.60; 100 Hoffman frames, \$2.60; 100 extracting frames, \$1.75; 3 per cent discount till April 1. Catalog free. Bees for sale.
H. S. DUBV, St. Anne, Ill.

POSITION WANTED

Position wanted with beekeeper; have had some experience; age 21.
BEN OBEYARD, Rt. 2, Box 4, Flandreau, S. Da.

Situation wanted by an experienced beeman, 23 years of age, of good clean habits, doesn't use liquor or tobacco. Best of references furnished on application. Address AMOS HARKER, Cambridge, Iowa.

BEES AND QUEENS

Our queens will please you. Price \$1.00 each.
C. W. PHELPS & SON, Binghamton, N. Y.

FOR SALE.—50 to 300 colonies, eight-frame, good condition. E. F. ATWATER, Meridian, Idaho.

FOR SALE.—134 colonies Italian bees in chaff hives. M. ISBELL, 59 Mitchell St., Norwich, N. Y.

FOR SALE.—Three-banded Italian queens bred for honey, gentleness, and prolificness. One, \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Do you wish to be treated right? Then send your orders for untested three-banded Italian queens to us—75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival, and the Golden Rule for all our customers. THE GOLDEN RULE BEE CO., Riverside, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnett's, Va.

No spring dwindling. Bees from the Land of Flowers. By express, safe arrival guaranteed. \$2.00 per half-pound. "A pound of bees in March is worth a swarm in June." EDWIN G. BALDWIN, DeLand, Fla.

Italian queens, untested, \$1.00; select tested, \$1.50. Bees by pound. Plans, "How to Introduce Queens," 15 cts.; "How to Increase," 15 cts.; or both, 25 cts. Descriptive list free. E. E. MOTT, Glenwood, Mich.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei, per frame, \$1.50. No disease here. Every thing guaranteed. C. B. BANKSTON, Buffalo, Leon Co., Tex.

There is a key to all business; and the key to successful honey production is "good" queens. We have them, and know how to raise them. Thirty-five years' experience. Three-banded Italians, 75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival and satisfaction to everybody. We handle successfully the orders of the largest producers. THE RIALTO HONEY CO., Rialto, Cal.

FOR SALE.—Three-banded Italian queens and packages. Best honey-gatherers. Satisfaction or your money back. No disease. Ready about April 1. One untested queen, 75 cts.; 6 for \$4.25; 12 for \$8.00. After April 15, 1/2 lb. bees, \$1.00; 1 lb., \$1.50; good weight; f. o. b. here by express. Add price of queens if wanted. These are young bees, so will live longer than those you have wintered. W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

Try my famous strain of bees and queens, and be convinced that they are all I claim for them. For honey-gathering they have few equals, being bred strictly for business from the best strains that could be had, both queens and drones, as it is as important to have drones of the best as it is queens. Queens, Italian three-band, or Golden five-band, and Carniolans, bred in separate yards. Untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; 25, \$17.50; 50, \$34.00; nuclei with the untested queen, 1 frame, \$2.50; 6 one-frame, \$15.00; two-frame, \$3.50; 6 two-frame, \$20.00; nuclei with tested queen, one-frame, \$3.00; 6, one-frame, \$17.40; two-frame, \$4.00; 6 two-frame, \$23.40. Satisfaction and safe arrival and prompt service guaranteed. D. E. BROTHERS, Attalla, Ala.

WANTS AND EXCHANGES

WANTED.—To buy second-hand four-frame honey extractor. JOHN BETZ, Rt. 2, Salinas, Cal.

WANTED.—Maple sugar in exchange for Root bee supplies. WALTER S. POWDER, Indianapolis, Ind.

WANTED.—A Hersher wax-press cheap, delivered here. DAVID J. GRABILL, 618 13th St., Modesto, Cal.

WANTED.—Good honey location, with or without bees. D. E. LHOMMEDIEU, Colo, Iowa.

WANTED.—To exchange 60 foul-brood dovetailed hives for 4 to 5 H. P. gasoline-engine. 13494 A. G. A., care GLEANINGS, Medina, Ohio.

WANTED.—A young man desires 50 to 100 colonies to work on shares during 1913 or longer, for extracted honey, near Mansfield, Ohio. Can furnish reference, or will buy them if for sale at a good bargain. Address M. B., Lock Box 252, Mansfield, Ohio.

WANTED.—250 or less colonies of bees, any style hive or box. For sale, 250 painted dovetailed supers for 4 1/4 sections, at 25 cts. each in lots of 25 or more. Correspondence solicited. A. W. SMITH, Birmingham, Mich.

HELP WANTED

WANTED.—Young man to work with bees and poultry. No one using tobacco or liquor need apply. E. L. LANE, Trumansburg, N. Y.

WANTED.—Reliable young man of good habits to work with bees and on farm. Give age, experience, and wages. FRANK KITTINGER, Franksville, Wis.

WANTED.—Beeman of experience. State experience and wages wanted in first letter. APPLETON & BAGNALL, Simi, Cal.

WANTED.—A single man, thoroughly competent to handle apiary for comb honey and to assist on stock farm. Permanent work for right man. W. P. SMITH, Artesia, Miss.

WANTED.—Another young man for season of 1913. Good opportunity to gain experience, as I am running several hundred colonies. N. L. STEVENS, Moravia, N. Y.

WANTED.—A queen-breeder and honey-producer, March 1 to Nov. 1. Give age, experience, and salary expected in first letter. This is a good position for an unmarried man to get an extensive experience. W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

MISCELLANEOUS

Rufus-red Belgian hares. Price list free. HARVEY L. STUMB, Richland Center, Pa.

WANTED.—Raw furs, honest prices, honest grades. GEORGE E. KRAMER, Valencia, Pa.

Bushel boxes, 21 cents each, nailed up, with name and address. H. GOCHNAUER, West Willow, Pa.

Strawberry Growing by Strawberry Pete, sent free. P. A. ANDERSON, Grand Mound, Ia.

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

Seed corn, White Elephant. Largest 100-day corn grown; good yield; 95 per cent test. Bushel, \$2.00. ROBERT PLATE, Mexico, Mo.

White-flowered goldenrod for sale at the rate of 50 plants for 50 cts. postage prepaid. The only plant that yields nectar and pollen after frost. JAMES S. JOHNSON, Langnau, Laurel Co., Ky.

FOR SALE.—Ginseng plants one year old, 25,000. Seed to come up this spring. Goldenseal plants; strawberry-plants. Write for prices. STUCKEY GINSENG GARDENS, Bremen, Ind.

POULTRY

FOR SALE.—Six Buttercup hens, one rooster. They are beauties; \$15.00. I. R. GOOD, Marion, Ind.

Kellerstraus Orpingtons, \$1.00 each. Lath-mill and typewriter cheap. C. IRONS, Linesville, Pa.

"Eureka" winter cases and W. R. eggs my specialties. Circular free.

B. T. BOSSERMAN, Williamstown, O.

Buttercups and Kellerstraus Orpingtons at bargain prices if taken soon.

CLAUD IRONS, Linesville, Pa.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free.

LEVI STUMB, Richland Center, Pa.

FOR SALE.—S. C. Black Orpingtons, the kind that lay, weigh, and pay. My pen is headed by Black Chief Junior. Eggs for hatching now booked, \$3.00 for 15.

C. L. COLE, Medina, Ohio.

FOR SALE.—S. C. Rhode Island Red, eggs and chicks; chicks, \$10 to \$25 per 100. Eggs, \$5.00 to \$12.50 per 100. Satisfaction guaranteed.

C. H. ZURBURG, Topeka, Ill.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.

CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Barred Rocks, Aristocrat Strain. Winners at all leading shows, both meetings; 200 fine pullets and 250 fine cockerels. These cockerels will improve your flock tenfold the first season.

W. G. GILMORE, Farmland, Ind.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties too. Per setting of 15, \$1.00. Satisfaction guaranteed.

W. O. ROUDABUSH, Hagerstown, Md.

INDIAN RUNNER DUCKS

Snow-white Indian Runner ducks; handsome and hardy; Fishel strain direct. Eggs for sale.

F. J. ARMSTRONG, Nevada, O. io.

Select thoroughbred Indian Runner ducks, white and fawn. Eggs, \$1.00 per dozen; \$7.00 per 100. J. C. WHEELER, 921 Austin Boulevard, Oak Park, Ill.

True Fawn and White Indian Runner ducks. Handsome and hardy, and the best of layers. I can start you with the best. Eggs, \$1.00 per 11.

H. C. LEE, Box 254, Brooksville, Ky.

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.

KENT JENNINGS, Mt. Gilead, O.

FOR SALE.—Pure White Indian Runner ducks, drakes and eggs. Pure-white eggs guaranteed from duck laying 110 eggs in 120 days. Free copy of "The Indian Runner Duck Book" by Valentine with each order. APPLECROFT, South Manchester, Ct.

Pure Spencer Strain White Indian Runner ducks. Wonderful layers of large, pure-white eggs. Eggs, \$5.00 per 12, \$25.00 per 100. Unsatisfactory hatch-
es, regardless the cause, replaced at half price.

A. R. WILLIAMS, Winchester, Ind.

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large, pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.

C. O. YOST, Box D, Rt. 4, Winchester, Ind.

Indian Runner Duck Eggs.—A golden opportunity to secure eggs from beautiful birds, and great egg-layers, at a moderate cost; eggs, 15, \$1.00; \$6.00 per 100; eggs from large rich red S. C. R. I. Reds, same price. "How to rear and produce an abundance of eggs from the Twentieth Century Egg-machine" goes with each order. Fertility and safe delivery absolutely guaranteed.

ROB'T BIRD, Pinckneyville, Ill.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices

WORCESTER COUNTY BEEKEEPERS' ASSOCIATION.

Meetings held on the second Saturday of each month, except July and August, at 2 P. M., at Horticultural Hall, Worcester, Mass.

March 8, Stimulative Feeding, Prof. O. F. Fuller. April 12, Building Up for Work, Arthur C. Miller, State Inspector, Providence, R. I.

May 10, Swarming and Requeening, Allan Latham, Norwich, Conn.

June 14, Address, Wilfrid Wheeler, Concord, Mass., Sec. State Board of Agriculture.

Summer Field Meeting. Date, location, and program to be announced.

September 13, Address, Burton N. Gates, Ph. D., State Inspector, Amherst, Mass.

October 11, Rights of Beekeepers, Arthur Monroe, Spencer, Mass.

November 8, Comb and Extracted Honey, A. Flansberg, Marlboro, Mass.

December 13, Value of Inspection, J. L. Byard, Inspector, Marlboro, Mass.

January 10, 1914, Annual Meeting. Election of officers. Reports of officers. General discussion of year's work.

AN OPPORTUNITY FOR BEEKEEPERS.

Beekeepers all over the country will be interested in an announcement of a beekeepers' day at the fifth annual farmers' week of the Massachusetts Agricultural College, on March 20. A program has been arranged which will prove attractive to any one interested in matters apicultural. The Hampshire, Hampden, and Franklin Beekeepers' Association will hold its annual meeting at 11:30, at which time W. M. Purrington, President of the Association, will speak on "Increase in the Apiary." At the same meeting E. F. Nichols will make his report as delegate to the National convention in Cincinnati. Lectures will also be given during the day by Irving W. Davis, Deputy Inspector of Apiaries; Dr. K. J. Franklin, Expert in Charge of Massachusetts cranberry investigations; Allen Latham, President of the Connecticut Beekeepers' Association; John L. Byard, Deputy Inspector of Apiaries, and Dr. B. N. Gates, of the Massachusetts Agricultural College. An opportunity will be given to visit and inspect the apiary building and the apicultural museum.

Beekeepers are invited to make demonstrations, and to display implements and products of the industry. If interested in this work, send for program to W. D. Hurd, Director of the Extension Service, Amherst, Mass.

FARMERS' WEEK, BEEKEEPERS' DAY.

The joint meeting of the Hampshire, Hampden, Franklin Beekeepers' Association Branch of the National Beekeepers' Association will be held March 20, 1913, in the Entomology Building, Massachusetts Agricultural College, Amherst, Mass.

This day is essentially for beekeepers. Come prepared to gain assistance in solving your problems, and to take part on the program. The entire beekeeping facilities at the College are at your disposal. Copies of this announcement will be sent to your friends upon request.

8:30 A. M., "Sac Brood, Pronounced a New Bee Disease in Relation to other Brood Diseases."—Irving W. Davis, Deputy Inspector of Apiaries.

9:30 A. M., "Value of Bees in Cranberry Culture as Proven by Experiments."—Dr. H. J. Franklin, Expert in Charge of Massachusetts cranberry investigations.

11:30 A. M., Annual meeting of the Hampshire, Hampden, Franklin Beekeepers' Association, President W. M. Purrington presiding.

"Increase in the Apiary."

Reports, regular business, election of officers, etc. "The National Convention, Cincinnati."—Report by Mr. E. M. Nichols, delegate.

1:30 P. M., Visit to the Apiary Building and Apicultural Museum of the Massachusetts Agricultural College.

2:30 P. M., "New Methods of Beekeepers; Wintering a Supply of Queens; Outyard Systems, etc."—Allen Latham, Norwichtown, Ct., President Connecticut Beekeepers' Association.

3:30 P. M., Addresses: "Bee-hunting as a Factor in Foul-brood Control."—John L. Byard, Deputy Inspector of Apiaries.

"More Bees and Better Beekeeping for Massachusetts."—Dr. B. N. Gates, Inspector of Apiaries.

4:30 P. M., the convention will be thrown open for addresses by prominent beekeepers and members.

5:30 P. M. (Draper Hall). Dinner for beekeepers. Private dining-room. Tickets 50 cts. Leave your name at the Extension Service Office.

Facilities are provided for the display of implements and products of the industry. Any beekeeper is invited to make demonstrations. It is advisable to announce your intentions to Dr. B. N. Gates, Amherst, Mass., in advance, in order that full provisions may be made for your convenience.

All interested in bees should attend.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

ALSIKE CLOVER SEED.

We are obliged to mark up the price of alsike clover from that recently offered, as we have sold out our stock and have to buy more on a higher market. If any of our readers have any surplus seed to offer we should be pleased to have offers with sample. At present we quote, bags included, peck, \$4.00; ½ bushel, \$7.50; bushel, \$14.50; two bushels, \$28.00.

MAPLE SUGAR AND SYRUP.

The disappointments of last season should not deter any one from placing an order for maple sugar or syrup this coming season. To-day, Feb. 20, the sugar-makers in this section begin tapping their trees, and there is every reason to look for a fair flow of sap this year. To those who are forehanded enough to anticipate their needs we will make the following prices subject to stock on hand at the time shipment is desired:

Single 1-gallon cans or six 1-gallon cans in a case, at \$1.25.

Two to ten cases of six 1-gallon cans, at \$1.15.

Larger quantities of 75 to 100 gallons, at \$1.10.

Pure rock-maple sugar in lots of 1 to 50 lbs., at 15 cts. per lb.

Pure rock-maple sugar in lots of 50 or more lbs. at 14 cts. per lb.

Orders will be filled in rotation, or as nearly as possible, depending on the size of the order. Our inspection will be much more rigid than formerly, so that you need have no fear of getting an off-grade of syrup. By the United States standard, 11 lbs. 2 1-5 oz. are required for a gallon of the fancy grade and the No. 1. For the second grade, 11 lbs. per gallon is required. Many of our readers will remember that Medina County secured the gold medal at the World's Columbian Exposition. Let your order come along as we shall undoubtedly have a fair supply by the time you read this notice.

SWEET-CLOVER SEED.

The demand for sweet-clover seed, especially the white, is brisk, and we have already sold more than half our stock of seed, and could have cleaned it all out, but have reserved some for our regular trade. If you are expecting to order, you had better get your order in while the supply lasts, as there is a very active demand. If any of our readers have any surplus to offer, let us hear from you, with sample.

We have a good supply of white, both annual and biennial. Most of the yellow offered by seedsmen is the annual variety, which is not to be compared with the biennial. The latter is very similar to the white; comes into bloom about two to three weeks earlier, and therefore prolongs the honey-flow that much. We quote:

	Price in lots of	1 lb.	10 lbs.	25	100
Melilotus alba, biennial...					
White sweet clover, hulled	24	\$2.20	\$5.25	\$20.00	
" " unhulled	17	1.50	3.50	13.00	
Melilotus officinalis, biennial					
Yellow sweet clover, hulled	28	2.60	6.25	24.00	
" " unhulled	21	1.90	4.50	17.00	
Annual yellow, hulled...	14	1.20	2.75	10.00	

Samples mailed free on request.

Kind Words from our Customers

The A. I. Root Co.:—

I never want to lose a single copy of GLEANINGS. I started last year with five stands of Italian bees: increased them to sixteen stands, and took off over a ton of alfalfa honey.

Oral, S. Da., Feb. 17.

CARMON FISHER.

The A. I. Root Co.:—

Honey crop this year, 5000 lbs. from 35 colonies, spring count, increasing to 60 colonies with plenty of stores for wintering; one-third comb honey and two-thirds extracted. Two colonies produced 250 lbs. each of extracted.

Stanton, N. J., Sept. 27.

L. K. COLE.

The A. I. Root Co.:—

May be you remember that you shipped me 3 lbs. bees and three queens on July 9 from Medina. I put them in my hives; and after a while I noted that one of the colonies was queenless, and I bought of you a select untested queen. I have fed my bees since July every day, and two of these nuclei are strong colonies, having drawn out 40 lbs. of honey, and they will winter well.

Pikeville, Ky., Sept. 22. GUSTAVE L. SCHMIDT.

THE LITTLE GIRL'S "SERMON," ETC.

Dear Bro. Root:—I have just read your article the second time in GLEANINGS for Dec. 15, and will say that it will be a great help to me. I always turn to your "Homes" department first when GLEANINGS is received, and I can not help believing that God has prospered you and your family for the great good that you are doing; and this little girl who wrote you this letter, I should love to take up in my arms and look in her angel face, as I am a great lover of children. This child will not see the fruits of this little seed that was dropped in fertile soil that will spread like a green bay tree until she reaches the kingdom of God; and you too, Bro. Root, some sweet day will see the fruits of your labors.

Gate City, Va., Dec. 30.

H. P. GROGAN.

ESTABLISHED 1891

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan and Cherry Sts.**San Antonio, Texas**

Factory and Warehouse.

To Our Friends and Patrons

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as all those engaged in the business.

Owing to the constantly increasing demand for comb foundation and beekeepers' supplies, we have again been compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past year, our sales having aggregated approximately \$100,000.00.

Although it has been found a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the 5 $\frac{3}{8}$ -inch frames, same as described in our catalog, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the 10-frame hives.

Shortly before the death of Mr. Mayfield Mr. Udo Toepperwein sold his interest to Messrs. R. W. Hearne and B. L. Raborn, well-known business men of San Antonio. The retirement of the older members of the company will in no way change the policies of the new management except to increase materially the capital with the view of carrying a large stock of supplies. Mr. Morris, who has been practically the manager of the Toepperwein & Mayfield Co., continues with the new management.

It is the intention of the new management to increase materially the capital of the company, with the view of carrying a stock of supplies that will meet all the requirements of the trade. This will enable us to effect prompt shipments at all times, and thus avoid any delay and annoyance to customers on account of shortage of stock.

It will be our endeavor to accord our customers all possible courtesies and consideration in any matters that may arise. Mistakes will occur at times, as is only natural, and we only ask that they be brought to our attention so that they may be rectified. Our customers may be assured of the best quality of goods at as reasonable prices as are consistent with business methods.

Our new catalog on request. Address

TOEPPERWEIN & MAYFIELD CO., - San Antonio, Texas.

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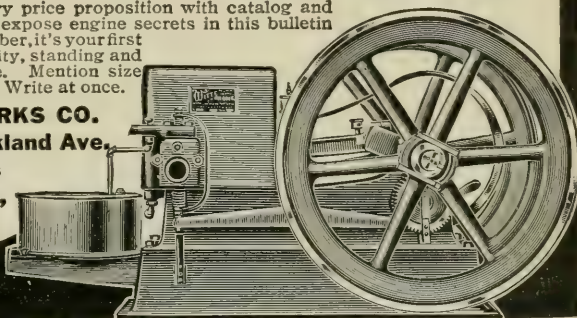
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The greatest cultivating tools are

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They do the work of 3 to 6 men—quicker, better, cheaper.

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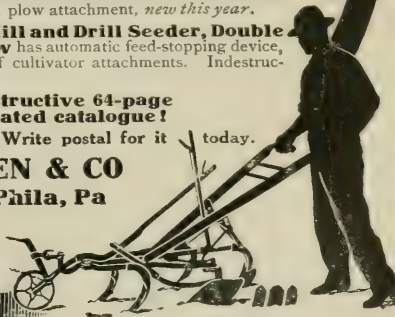
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This advertisement is for

POULTRY AMATEURS

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To back-yard chicken owners we say "Do not waste time with the poultry books and booklets which are intended only for business poultrymen, as 90 per cent of them are. They are not meant for you, and will not give the facts you need. Get the only up-to-the-minute treatise for the non-professional owner of a few hens—which is our new booklet—

"Egg Secrets"

J. M. Foster wrote "Egg Secrets." He is the Egg King—the owner of the famous Rancocas Farm—and what he doesn't know about poultry isn't learnable. Mrs. Foster made an experiment with this back-yard egg factory, and she made a go of it. You ought to hear what she says about it. It's all in the book. Now, we say that you can do this very thing as sure as two and two make four.

Now, here's the fact:—The table scraps in an average family will furnish chickens with all their food except the grain—in return for these scraps and a little grain you will get eggs the year round—fine, clean, delicately flavored eggs whose history you know and which you can open without trepidation and eat with delight.

Then you needn't care whether eggs are thirty cents or eighty cents—you can have yours always, and *always fresh*, for practically nothing.

These are facts. Don't let any thing that you've heard, or some neighbor's experience sway you. Some people couldn't raise English sparrows. Bear in mind that there are many thousands of people who are running a back-yard egg factory successfully—who are eating their own fresh eggs daily while you are getting the cold-storage variety at exorbitant prices.

Stop Paying Outrageous Prices for unspeakable Eggs

You needn't have a lot of chickens—you needn't have a big yard. You needn't worry about the roosters crowing and disturbing the neighborhood—for they are strictly barred in this plan. You eat them before they are old enough to be a nuisance. Just a few hens will suffice for an average family—less for a small one—and besides the waste scraps of meat and vegetables from your table you need to feed them only a grain ration. It's the easiest sort of thing when you've read the book and know thoroughly the principles of the thing.

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Gleanings in Bee Culture



VOL. XLI. MARCH 15, 1913, NO. 6.

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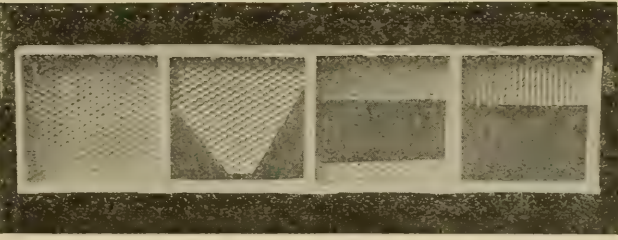
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From the sweetest and purest beeswax that can be obtained. No old stock—made daily by our own superior methods. Falcon foundation is coming in more constant use every year, and has proved itself to be most readily accepted by the bees.



OTHER GOODS—Double - grooved Hoffman brood-frames as well as sections will be needed for spring use. As it takes a lot of time to put up frames and sections with starters or full sheets, it would be well to look up your requirements. It will give you ample time by ordering now.

Light Standard Brood,	1 lb., 58c; 5 lbs., 57c	Light Section	1 lb., 65c; 5 lbs., 64c
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THE ROOT CO.'S MAKE OF SUPPLIES,

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Send us your rush orders and get your goods before swarming time arrives.
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HIGH HILL, MO.

DO YOU LOVE SWEETS?

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He said you can attain to royalty by loving sweets.

“He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man.”

“HOW to come at these?”

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*.

Want to know how?

Send \$1.00 for a year's subscription to

The Guide to Nature
Arcadia, Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, “a bee-man” and a naturalist.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the

wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy white comb at 16 to 17; No. 1 white comb, 15 to 16; fancy white extracted, 10 to 11; light amber, 9 to 10; amber, 8; beeswax, 30.

Boston, March 10.

BLAKE-LEE CO.

NEW YORK.—There are no new features to report as to the condition of the honey market. Trade is quiet, comb honey well exhausted, and prices ruling about the same as our last quotation.

New York, March 4. HILDRETH & SEGELKEN.

INDIANAPOLIS.—Fancy white sells at 18 in ten-case lots; No. 1 white 1 ct. less; amber comb is in slow demand and at lower prices. Best extracted sells at 11 to 12 in five-gallon cans. There is an excessive demand for comb honey, but very little is now being offered by producers. Beeswax is in good demand, and producers are being paid 30 cts.

Indianapolis, March 10. WALTER S. POWDER.

LIVERPOOL.—We quote retail sales of California honey at \$9.60 to \$17.40 per 100 lbs. Jamaican is slow trade at \$6.72 to \$7.68. Chilian is quiet. Of pile X, 30 barrels have been sold at \$8.64; pile 1, \$8.04 to \$8.16; pile 3, \$7.14; no pile, \$6.00. The market for Chilian beeswax is steady, 25 bags having been sold at \$34.32 to \$38.88 per 100 lbs.

Liverpool, Feb. 19.

TAYLOR & CO.

ST. LOUIS.—The honey market is very dull. There is barely any demand. Stocks, however, are not large and not burdensome. We quote fancy white comb honey by the case, \$3.75; No. 2, \$3.40 to \$3.50; amber, \$2.75 to \$3.25; dark, if sound, full weight, \$2.40 to \$2.50; Southern extracted in barrels, 6½ to 7; in five-gallon cans, 7 to 7½. California and other Western honey, at 9 to 9½ for white; light amber, 8 to 8½. Beeswax, 30 for prime.

St. Louis, March 5. R. HARTMANN PRODUCE CO.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor.
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Now, Then, for Your Early Bee-supply Orders!

Send us a list of the Bee Supplies you want.
Our prices will astonish you.
Also send us your old combs.
We will render your wax and save you money.
Write for particulars.

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Hives should be ordered at once if they are to be ready for spring. Frames, and other inside fixtures too, should be put together now; and as this is a dull season with most of our customers, the work can be done now with no extra expense.

If you are wanting any special goods, orders ought to be in our hands within the next few days. Other cars will be coming from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

Our new catalog is out, and mailing completed. If you are not on our mailing list send us a postal-card request for this catalog.

If you want to buy in quantities considerably larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line, and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder, the best in the market. Write for our catalog.

C. H. W. Weber & Co.

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Cincinnati, Ohio

Gleanings in Bee Culture

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Editor.

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice: otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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DENVER.—We quote comb honey in a jobbing way at the following figures: No. 1, \$3.05; choice, \$2.90; No. 2, \$2.70. Extracted honey, white, 9; light amber, 8; strained, 6½ to 7. We pay 26 in cash and 28 in trade for clean yellow beeswax delivered here. THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, March 10. FRANK RAUCHFUSS, Mgr.

ALBANY.—The honey market is very quiet here, there being no comb honey on the market. The crop was very small, and quality poor; principal complaint is candied honey, which is becoming a serious proposition. Extracted sells better than the dark and buckwheat grade, at 7½ to 8.
Albany, March 5. H. R. WRIGHT.

ZANESVILLE.—There is not much change in the honey situation since last report. Market is very quiet, but prices are about stationary. Best grades of white comb are quoted at 18 to 19 in one or two case lots; larger quantities at correspondingly lower prices. Best white extracted, 10 to 11. Producers receive for beeswax 28 cts. cash, 30 in trade. Wholesale market, 38 to 45, according to quantity and quality.
Zanesville, March 10. E. W. PEIRCE.

Kind Words from Our Customers.

The hives ordered from your firm came all right. Every thing came in good shape, just as ordered.
Carolina, R. I., Feb. 20. CYRUS E. KENYON.

Please insert my advertisement again for six times. The former one brought me a good number of inquiries. I am running my advertisement in five poultry journals, but have not had any inquiries from any of them. GLEANINGS has them all beat.
Berlin, Mich., Feb. 26. WALTER M. ADEMA.

I have been taking GLEANINGS, but have not had it since November. I am behind in my subscription, but I do not know how much. Please let me know how much it is, and I will remit, for I can not do without it. I am very much interested in bees. I have 87 hives at present, all in good condition. I did better last year than I ever did before. I got 194 lbs. from one hive. I averaged 133 lbs. per hive. I did not have 87 to start with. I have bought several since the season closed. I want 200 to start with this year.

I have read GLEANINGS with much interest. I enjoy reading Our Homes. We have no bee disease here in Tennessee.
Columbia, Tenn. J. H. DERRYBERRY.

BE THOU FAITHFUL UNTO DEATH, AND I WILL GIVE THEE A CROWN OF LIFE.

Mr. A. I. Root:—Often I have been moved to write a letter of encouragement and appreciation of your writings in GLEANINGS. Our Homes and temperance talks are read first. We find much good in them, as they seem so practicable and uplifting. When a small boy I remember when father would read to us at home out of religious papers, and how eager we were to listen when A. I. Root's writings were read.

Although now a little past the twenties, and in a home of our own, just launching out in life, as it were, we find Our Homes more helpful than ever. In my trade as electrician it helps me to be honest, trust in God, and gives me zeal and courage to stand for the right. We often get our meals at hotels in small towns, and there we see some of the evils of intemperance. Mr. Root, I believe God has still a task for you to perform; and that is, to unite the different temperance causes under one banner. Can we not, the Christian people of this land, with one united effort, and the help of God, overthrow and for ever abolish the rum traffic?

New Holland, Pa., Dec. 15. S. Z. MUSSELMAN.

A hearty amen, Bro. M., to your suggestion that all good people should unite (forgetting unimportant differences, and fight under one banner.

BANKING BY MAIL

One of the greatest practical conveniences of modern times is Banking by Mail.

Those who live in rural districts can obtain the same safety and accommodation as city people.

Banking by Mail is safe, convenient, and simple. Send your money together with your signature for identification to the bank, and you will receive a pass book with the amount of your deposit credited therein.

Write us to-day about this plan.

**The SAVINGS
DEPOSIT BANK COMPANY**
Medina, Ohio

Notice to Beekeepers

I am now taking orders for pound packages and nuclei; also for my leather-colored strain of Italian queens mated on an island, and bred in their purity. Free from all disease. Prices made on application. My guarantee—Your money back if not satisfied; a liberal discount on all large orders. Reference, the American Exchange Bank of Apalachicola, Fla.

A. B. Marchant.



SUPERIORITY of the CARNIOLAN BEE

A paper explaining the merits of these bees; best system of management for comb and extracted honey and other information.

Free for the asking. Beekeepers who buy queens in dozen lots or more should get their orders booked early. The queen-breeder can then make shipments more nearly as desired...
Carniolan
Albert G. Mann Queen Breeder Pittstown, N. J.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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We are booking orders for Italian bees in half-pound or pound packages, with or without queens. Write us for prices on quantity you need.

Two Months till Swarming Time--

A hive at your shop is worth ten at the factory---when the swarm is hanging on the limb. Goods purchased now can be made ready for later use. We have them, and they're Root's goods, too. Send for catalog.

M. H. HUNT & SON, LANSING, MICH.

OPPOSITE LAKE SHORE DEPOT

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Send 10 names of fruit-growers and 10 cents, and get "The Southern Fruit Grower" four months. Tells all about fruit-growing, gardening, poultry-raising, etc., in the South. Contains from 32 to 40 pages each month. Address

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**Italian Bees and
Sicilian Buttercups**

For all that is best, unexcelled. Queens, \$1.00 each; six for \$5.00. Eggs, prize-winning pen, 15 for \$5.00; "A" pen 15 for \$3.00; 30 for \$5. Bred in their purity.

H. William Scott, Barre, Vermont.

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You will soon need a bill of supplies. Let us quote you before placing your order. We please thousands, why not you? Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

BEE SUPPLIES

Southern Agent for The A. I. Root Co.

Save freight by buying near home.
SPRAY PUMPS and CHEMICALS.
Bees and queens for sale.

W. E. TRIBBETT, STAUNTON, VIRGINIA
Write for catalog. FACTORY PRICES.

THE BEEWARE BRAND MEANS SUCCESS

INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

"Griggs Saves You Freight"

TOLEDO

"Griggs Saves You Freight"

By the way orders are coming in, it proves that the successful producers are not going to be caught napping. Every indication points to a good honey season which will soon be here.

We have anticipated the demand by getting in a larger stock of ROOT'S GOODS than we have ever carried; every thing new, and orders can be shipped promptly.

Start the season right by sending your orders to Toledo. Catalog free.

Beeswax wanted. Cash or in exchange for supplies

S. J. GRIGGS & CO. . . 26 North Erie Street . . TOLEDO, OHIO



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Bee Supplies Up to Date

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GUARANTEE. — Many articles described in my catalog can now reach you by parcel post, and I assume all responsibility in safe arrival of goods. I have the very finest tight-seal glassware for putting up extracted honey, and I guarantee safe arrival—no breakage at purchaser's loss. I have waxed-paper honey-jars that are a decided success wherever they have been used.

MY CATALOG. — My catalog describes all of these things, and contains valuable information for those who are interested. I shall be pleased to show you how promptly I can get one into your hands if you will drop me a card.

BEESWAX. — Remember me when you have wax to offer, cash or trade, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

MARCH

The last month before the busy season for the beekeeper begins. Unless, with wise forethought, you have already anticipated your wants, you should place your order without delay. New goods by the carload are now coming in; and, though our service is at all times the best, we can serve you now with minimum delay and maximum satisfaction.

The new catalogs have arrived, and are being mailed. You will soon receive one if your name is on our trade list; otherwise you will be supplied on receipt of a postal-card request. Should you desire to order in the mean time, the 1912 catalog may be used. On cash orders in March, 1 per cent discount off catalog prices will be allowed.

Like the beekeeper whose letter follows, you will be pleased with PEIRCE SERVICE and ROOT QUALITY from OHIO'S BEE CENTER.

Mr. E. W. Peirce:—I want to thank you for prompt shipment of my order. It came in good shape.

Yours truly,

ALVA E. MOORE.

Marlinton, W. V., Feb. 22, 1913.

Mr. Moore also sends the name of a friend to whom he wishes the PEIRCE catalog sent. One will gladly be mailed to any beekeeping friend whose address you will be kind enough to give.

E. W. Peirce, Zanesville, O.

136 W. Main St.

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Tested, \$1.50; six for \$7.50; twelve for \$13.50.
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Two-frame nuclei, \$2.50; three-frame nuclei,
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Large QUEEN circular on request.

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PENN, MISSISSIPPI

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J. B. MASON, Manager

Pure Golden Italian Queens

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4 Extra Pages

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fore the time he began his experiments in 1885. The book has already passed through three editions of many thousands. It not only includes potato-growing in the United States, but in Bermuda, the Island of Jersey, and other warmer parts of the world where "new potatoes" are raised for the express purpose of getting the high prices in the cities during January, February, and March. The book also gives special attention to the different and best methods for preserving and keeping seed potatoes in the very best condition to plant in all these different localities.

5 | A B C of Strawberry Culture,** by T. B. Terry.. New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.

After Terry's potato-book had obtained such a kind reception from farmers, market-gardeners, and others, he was induced to give his plan of growing strawberries, as he did potatoes, by plowing under great crops of clover, and, like the potato-book, his writings gave a new impetus to strawberry-growing: in fact, some of his pupils declare that, aside from the picking, they can grow strawberries almost as cheaply per bushel as potatoes. By following Terry's teachings, thousands of people have not only been able to give their families but the whole wide world better strawberries, and more of them, than they ever saw before.

6 | Asparagus Culture.....40

6 | Alfalfa Culture.....40

| Barn Plans and Out-buildings*.....90

2 | Celery for Profit, by T. Greiner**.....25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

10 | Fruit Harvesting, Storing, Marketing, etc.....75

It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.

| Farming with Green Manures, postpaid**.....90

This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.

7 | Farm, Gardening, and Seed-growing**.....90

10 | Fuller's Grape Culturist**.....1 15

5 | Garden and Farm Topics, Henderson**.....60

12 | Gardening for Pleasure, Henderson**.....1 10

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price \$2.00.)

12 | Gardening for Profit**.....1 10

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts. (Retail price \$2.00.)

8 | Gardening for Young and Old, Harris**.....90

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter

Postage.]

[Price without postage

Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants..... 20

This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft**... 1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft**..... 1 15

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is \$1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper*..... 20

5 | Gregory on Squashes, paper*..... 20

5 | Gregory on Onions, paper*..... 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05

5 | Home Pork-making; 125 pages, illustrated..... 40

I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15 | How to Make the Garden Pay**..... 1 35

By T. Greiner. Those who are interested in hot-beds, cold-frames, cold green-houses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price \$2.00.

10 | How to Keep Well and Live Long..... 90

The above book by T. B. Terry is, in my opinion, destined to relieve more pain, sickness, and death than any other book in the whole world that has ever come to my knowledge. This is pretty strong language, I admit; but since Mr. Terry commenced, years ago, to urge the importance of pure air, pure water, and a simple diet of good simple food in moderate quantities, the whole wide world, doctors included, seems to be gradually falling in with him. Of course, other good and wise men commenced a similar crusade for better health long before Terry did; but he seems to have a happy faculty of getting hold of people and keeping their attention. After you once start in with the book you will be pretty sure to read it to the end, and you will ever after be a better and a happier man or woman for having read it. We have a special low price for clubbing with GLEANINGS—that is, both for \$1.50. If you have already paid for GLEANINGS a year or more in advance you can have the book for 75 cents postpaid. Since it first came out, only a short time ago, we have sold nearly 1000 copies.

3 | Maple Sugar and the Sugar-bush**..... 25

5 | Manures; How to Make and How to Use Them; in paper covers..... 30

6 | The same in cloth covers..... 65

2 | Nut Cultivist, postpaid..... 1 25

3 | Onions for Profit**..... 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and

Even if one is not particularly interested in the busi-

Postage.]

[Price without postage

ness, almost any person who picks up Greiner's books will like to read them through.

8 | Practical Floriculture, Henderson*..... 1 10

10 | Small-Fruit Cultivist, Fuller..... 75

2 | Experiments in Farming, By Waldo F. Brown. 08

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3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

8 | What to Do, and How to be Happy while Doing It..... 65

The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth.

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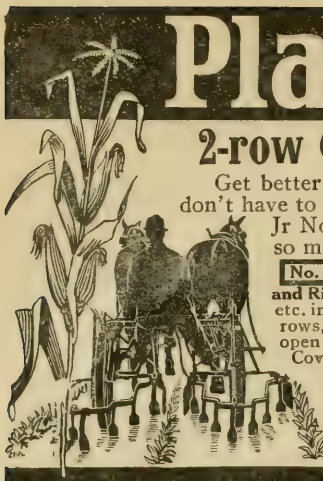
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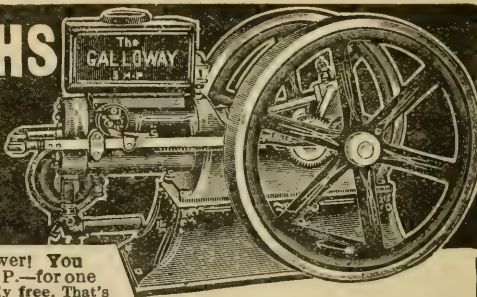

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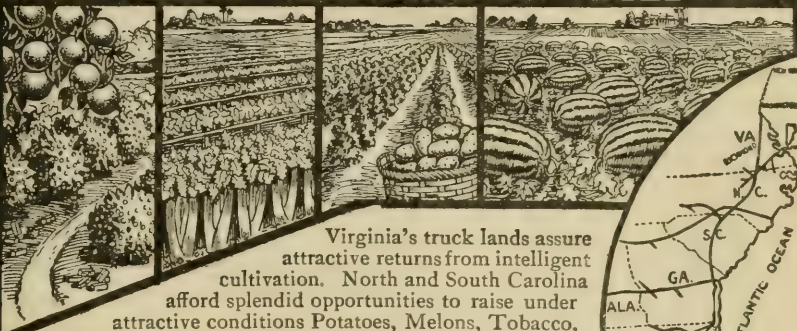
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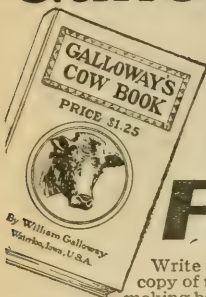
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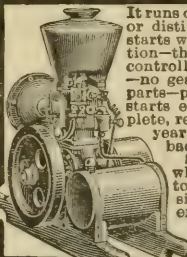
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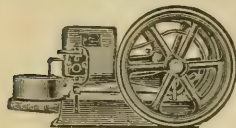


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to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

BRANCH OFFICES

New York, 139-141 Franklin St.	Chicago, 213-231 Institute Pl.
Philadelphia, 8-10 Vine St.	Des Moines, 565 W. 7th St.
St. Paul, 1024 Mississippi St.	Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W.	
Mechanic Falls, Maine	

Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory

MEDINA, OHIO



Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Finest quality of extracted honey.
J. F. MOORE, Tiffin, Ohio.

Blended white-clover honey in 60-lb. cans. Samples, 10 cts.
E. C. PIKE, St. Charles, Ill.

Finest extracted water-white alfalfa and amber alfalfa honey in 5, 10, and 60 lb. cans. Samples, 10 cents.
DADANT & SONS, Hamilton, Ill.

FOR SALE.—Finest quality clover and clover-bass-wood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

We have just received a large shipment of extracted white-clover honey from a prominent producer. This honey has a very heavy body, and was well ripened before it was taken off the hives. We ship it, if preferred, in liquid form without extra charge, in new tin cans holding five gallons each, two cans in a case. Ask for free sample of lot 81, and our price. We have some fine fall amber extracted. An early fall flow caught a producer before he could get his white honey off, so his crop had to be graded as amber. Free sample and the price for asking. Lot No. 69.
THE A. I. ROOT CO., Medina, Ohio.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & CO., 173 So. Water St., Chicago.

WANTED.—Comb, extracted honey, and beeswax. Write us.
HILDRETH & SEGELEKEN, New York.

WANTED.—Light and amber extracted honey; also comb honey. Give lowest prices.
D. H. WELCH, Racine, Wis.

WANTED.—We use large quantities of pure beeswax; parties having wax to sell write us at once. We pay highest price.
QUEEN MFG. COMPANY, Falconer, N. Y.

WANTS AND EXCHANGES

WANTED.—Bees and locations for bees; all particulars.
H. L. CAPELLE, Lake City, Minn.

WANTED.—Carload of bees for May delivery, from this or nearby State.
W. J. MANLEY, Sandusky, Mich.

WANTED.—Good honey location, with or without bees.
D. E. LHOMMEDIEU, Colo. Iowa.

WANTED.—Raw furs, honest prices, honest grades.
GEORGE E. KRAMER, Valencia, Pa.

WANTED.—Kodak, typewriter, 22-rifle. Watch and books in exchange for seeds, plants, and bulbs.
JACOB MCQUEEN, Baltic, Ohio.

WANTED.—250 or less colonies of bees, any style hive or box. For sale, 250 painted dovetailed supers for 4½ sections, at 25 cts. each in lots of 25 or more. Correspondence solicited.
A. W. SMITH, Birmingham, Mich.

FOR SALE

A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices.
THOS. LITZ, Osceola Mills, Pa.

FOR SALE.—An extractor. Inquire of
R. EMERY, Plymouth, Ohio.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case.
C. H. W. WEBER & CO., Cincinnati, Ohio.

FOR SALE.—Beekeepers' supplies; bees and honey. The only satisfactory hive for this climate. Write for circular.
A. E. BURDICK, Sunnyside, Wash.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars.
THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

Root's goods at Savannah. The logical center for your orders. The quality is unexcelled. Service accurate and prompt. Catalog free.
L. W. CROVATT, Box 134, Savannah, Ga.

Would like to sell a half interest in 200 colonies of bees, and work them in copartnership. Situated in good locality. Prefer man with some experience. Good proposition to right party.

F. A. JAMES, Newbern, Ala.

Bee supplies for all southern Idaho and east Oregon beekeepers, wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest.

C. E. SHRIVER, Boise, Idaho.

FOR SALE.—A good extractor, \$7.00; No. 17 Cowan reversible extractor, nearly as good as new, \$10.00; Amazing Detroit gasoline-engine, cost \$51 at factory, been used but little, \$40.00; two-horse boiler and engine in good running order, \$50.00.
J. W. UTTER, Amity, N. Y.

Best No. 1 sections, 1000, \$4.40; 2000, \$8.60; 3000, \$12.60; 5000, \$20.00. No. 2, 50 cts. less; plain, 25 cts. less. White-pine hive, 1½-story, eight-frame, \$1.45; 10-frame, \$1.60; 100 Hoffman frames, \$2.60; 100 extracting frames, \$1.75; 3 per cent discount till April 1. Catalog free. Bees for sale.
H. S. DUBY, St. Anne, Ill.

MUST SELL.—82 eight-frame and 27 ten-frame hives, full combs, 95 cts. and \$1.10 each; 12 eight-frame and 9 ten-frame hives, empty fr., 75 and 95 cts. each; 44 eight-frame new hives, wired frames, and foundation starters, \$1.00 each; 111 eight-frame and 48 ten-frame 4¼x1½ supers with sections and foundation starters, 40 and 50 cts. each; 79 eight-frame and 10 ten-frame supers, no sections, 30 and 35 cts. each. Hives with top and bottom all standard L. size, 3 coats paint; large part new, and the rest nearly as good. Order soon.

W. L. NYGREN, Dent, Minn.

MISCELLANEOUS

Strawberry Growing by Strawberry Pete, sent free.
P. A. ANDERSON, Grand Mound, Iowa.

White and brown ferrets. Stamp for description and prices.
JEWELL'S FERRET KENNELS, Spencer, O.

Seed corn, White Elephant. Largest 100-day corn grown; good yield; 95 per cent test. Bushel, \$2.00.
ROBERT PLATE, Mexico, Mo.

FOR SALE.—Soy beans, green flowering dahlia, thornless raspberry; 20 named dahlia, \$1.00 by mail. Circular free.
JACOB MCQUEEN, Baltic, Ohio.

Belgian hares will keep the grass down in the bee-yard. One female is more profitable than poultry, a cow, or sheep. Write for booklet showing why. My stock is the best.
L. A. HOWDEN, Prop. Genesee River Rabbitry, Fillmore, N. Y.

BEES AND QUEENS

FOR SALE.—50 to 300 colonies, eight-frame, good condition. E. F. ATWATER, Meridian, Idaho.

FOR SALE.—134 colonies Italian bees in chaff hives. M. ISBELL, 59 Mitchell St., Norwich, N. Y.

Colonies of Italian bees, good condition; supers, supplies, bee magazine. SARA A. KEER, Shelby, Ohio.

Extra fine Italian queens, each, 90 cts., all warranted, delivery beginning April 1. F. HUGHES, Gillett, Ark.

For quick sale, a snap; 324 colonies hybrid bees on frames; two-frame nuclei with laying Italian queen, \$2.75. J. B. MARSHALL, Big Bend, La.

Tested Italian queens, reared last fall, vigorous and prolific; no disease; every queen guaranteed by return mail, \$1.00 each. Send for price list. J. W. K. SHAW & Co., Loreauville, Iberia Par., La.

Do you wish to be treated right? Then send your orders for untested three-banded Italian queens to us —75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival, and the Golden Rule for all customers. THE GOLDEN RULE BEE CO., Riverside, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnett's, Va.

Italian queens, untested, \$1.00; select tested, \$1.50. Bees by pound. Plans, "How to Introduce Queens," 15 cts.; "How to Increase," 15 cts.; or both, 25 cts. Descriptive list free. E. E. MOTT, Glenwood, Mich.

Beginning the middle of March I will send bees by the pound as follows: ½ lb., \$1.00; 1 lb., \$1.50. If a queen is wanted, add \$1.25 for tested and \$2.00 for select tested queen. Nothing but three-banded stock sent out. J. D. FOOSHE, Rt. 1, Augusta, Ga.

We are now booking orders for Phelps' Golden Queens. Mated, \$1.00; doz., \$9.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. Why not get the best? C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnetts, Virginia.

Fine tested and select tested Italian queens of last season's rearing. Gentle three-banded stock that will increase your honey crop. Order now for spring delivery. Tested queens, \$2.00 each; selects, \$2.50. H. C. SHORT, Winchester, Ohio.

FOR SALE.—Moore's strain and golden Italian queens, untested, \$1.00; six, \$5.00; twelve, \$9.00. Carniolan, Banat, and Caucasian queens, select, \$1.25; six, \$6.00; twelve, \$10.00. Tested, any kind, \$1.50; six, \$8.00. Choice breeders, \$3.00. Circular free. W. H. RAILS, Orange, Cal.

Golden and three-banded Italian also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei, per frame, \$1.50. No disease here. Everything guaranteed. C. B. BANKSTON, Buffalo, Leon Co., Tex.

Bees in ½ and 1-lb. packages without queen, \$1.25 and \$2.00. These are young bees free from disease, and will greatly stimulate your weak colonies. We will make good any serious loss in transportation if the same is vouched for by your express agent. CHARLES C. SCHNEIDER, Dancy, Ala.

FOR SALE.—100 colonies of Italian and hybrid bees in standard ten-frame hives, \$5.00 per colony. J. F. RASCH, Marilla, N. Y.

Italian bees by the pound or in nuclei; ½ lb. bees, \$1.00; 1 lb. bees, \$1.75; 2 lbs., \$3.25; nuclei, \$1.25 per frame. Bees ready April 1. Write for prices on queens in small or large lots, also bees in carload lots. Carload lots ready May 1. ARVIN, Nusbaum Co., Meldrim, Ga.

There is a key to all business; and the key to successful honey production is "good" queens. We have them, and know how to raise them. Thirty-five years' experience. Three-banded Italians, 75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival and satisfaction to everybody. We handle successfully the orders of the largest producers. THE RIALTO HONEY CO., Rialto, Cal.

FOR SALE.—Three-banded Italian queens and packages. Best honey-gatherers. Satisfaction or your money back. No disease. Ready about April 1. One untested queen, 75 cts.; 6 for \$4.25; 12 for \$8.00. After April 15, ½ lb. bees, \$1.00; 1 lb., \$1.50; good weight; f. o. b. here by express. Add price of queens if wanted. These are young bees, so will live longer than those you have wintered. W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

REAL ESTATE

Home of 10 acres, unlimited bee and poultry range—good market; healthiest locality in Texas; \$3000. If you mean business, apply to A. F. Z., Box 115, Llano, Texas.

FOR SALE.—Bee, chicken, or duck ranch; house, barn, chicken-house, incubator house, incubators, steam-heated brooder-house. Bees, ducks, and chickens. Price \$2500. Terms to suit the buyer. C. MARTINEIT, Littleton, Col.

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

FOR SALE.—Small place with 106 colonies of bees and fixtures in New Scotia, near the large city of Schenectady, one of the most flourishing in the world. The location is a good one for honey—plenty of white and sweet clover; also buckwheat and goldenrod. No other beekeepers near. Address G. H. ADAMS, Spring and Central Aves., Troy, N. Y.

FOR SALE.—Fine eight-room cement-block house, cement basement, electric heat, light, and cooking, fireplace. One acre of ground all fenced, in city limits; street-car, eighty five-year fruit trees (apples, peaches, pears, prunes, plums, and cherries); 200 grapes, strawberries, rose hedge, shade trees, auto and honey house; room for 200 colonies of bees; average \$10.00 net per colony here. Price \$6000. Ask Mr. A. L. Boyden; he saw it. J. BEN HALL, Twin Falls, Idaho.

POSITION WANTED

Situation wanted, by an experienced beeman, 23 years of age, of good clean habits, doesn't use liquor or tobacco. Best of references furnished on application. Address AMOS HARKER, Cambridge, Iowa.

Work wanted as assistant or helper in a large apiary where run in connection with poultry business. Permanent work, and eastern or southern State preferred; strictly temperate; experienced, and can give reference. H. C. DAVIS, Belington, W. Va.

POULTRY

Kellerstrauss Orpingtons, \$1.00 each. Lath-mill and typewriter cheap. C. IRONS, Linesville, Pa.

Buff Orpingtons, Buff Leghorns, Anconas.
MARLE W. WEMMER, Jacksonville, Ohio.

Sicilian Buttercups. Best of all. Eggs for hatching. Mating list free. D. S. DURALL, Hurdland, Mo.

Prize-winning Barred Rocks. Write for mating list—it's free. Satisfaction guaranteed.
W. H. PORTER, Sandy Lake, Pa.

"Eureka" winter cases and W. R. eggs my specialties. Circular free.
B. T. BOSSERMAN, Williamstown, Ohio.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free.
LEVI STUMB, Richland Center, Pa.

Sicilian Buttercups. The most persistent layers and non-sitting variety. Eggs, \$1.50 and \$3.00 per 15.
WALTER M. ADEMA, Berlin, Mich.

FOR SALE.—S. C. Black Orpingtons, the kind that lay, weigh, and pay. My pen is headed by Black Chief Junior. Eggs for hatching now booked, \$3.00 for 15.
C. L. COLE, Medina, Ohio.

FOR SALE.—S. C. Rhode Island Red, eggs and chicks; chicks, \$10 to \$25 per 100. Eggs, \$5.00 to \$12.50 per 100. Satisfaction guaranteed.
C. H. ZUEBURG, Topeka, Ill.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Barred Rocks, Aristocrat Strain. Winners at all leading shows, both meetings; 200 fine pullets and 250 fine cockerels. These cockerels will improve your flock tenfold the first season.
W. G. GILMORE, Farmland, Ind.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties, too. Per setting of 15, \$1.00. Satisfaction guaranteed.
W. O. ROUDABUSH, Hagerstown, Md.

INDIAN RUNNER DUCKS

Indian Runner, fawn and white; Harshbarger white-egg strain; 12 eggs, \$1.00.
C. L. BROOKS, Deansboro, N. Y.

Snow-white Indian Runner ducks; handsome and hardy; Fishel strain direct. Eggs for sale.
F. J. ARMSTRONG, Nevada, Ohio.

Select thoroughbred Indian Runner ducks, white and fawn. Eggs, \$1.00 per dozen; \$7.00 per 100.
J. C. WHEELER, 921 Austin Boulevard, Oak Park, Ill.

True Fawn and White Indian Runner ducks. Handsome and hardy, and the best of layers. I can start you with the best. Eggs, \$1.00 per 11.
H. C. LEE, Box 254, Brooksville, Ky.

Fawn and white Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.
KENT JENNINGS, Mt. Gilead, Ohio.

Pure Spencer Strain White Indian Runner ducks. Wonderful layers of large, pure-white eggs. Eggs, \$5.00 per 12, \$25.00 per 100. Unsatisfactory hatchings, regardless the cause, replaced at half price.
A. R. WILLIAMS, Winchester, Ind.

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large, pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.
C. O. YOST, Box D, Rt. 4, Winchester, Ind.

Indian Runner Duck Eggs.—A golden opportunity to secure eggs from beautiful birds, and great egg-layers, at a moderate cost; eggs, 15, \$1.00; \$6.00 per 100; eggs from large rich red S. C. R. I. Reds, same price. "How to rear and produce an abundance of eggs from the Twentieth Century Egg-machine" goes with each order. Fertility and safe delivery absolutely guaranteed.
ROBT BIRD, Pinckneyville, Ill.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

SWEET-CLOVER SEED.

The demand for sweet-clover seed, especially the white, is brisk, and we have already sold more than half our stock of seed, and could have cleaned it all out, but have reserved some for our regular trade. If you are expecting to order, you had better get your order in while the supply lasts, as there is a very active demand. If any of our readers have any surplus to offer, let us hear from you, with sample.

We have a good supply of white, both annual and biennial. Most of the yellow offered by seedsmen is the annual variety, which is not to be compared with the biennial. The latter is very similar to the white; comes into bloom about two or three weeks earlier, and therefore prolongs the honey-flow that much. We quote:

	Price in lots of	1 lb.	10 lbs	25	100
Mellilotus alba. biennial....					
White sweet clover, hulled	24	\$2.20	\$6.25	\$20.00	
" " unhulled	17	1.50	3.50	13.00	
Mellilotus officinalis. biennial					
Yellow sweet clover, hulled	28	2.60	6.25	24.00	
" " unhulled	21	1.90	4.50	17.00	
Annual yellow, hulled.....	14	1.20	2.75	10.00	

Samples mailed free on request.

MAPLE SUGAR AND SYRUP.

The disappointments of last season should not deter any one from placing an order for maple sugar or syrup this coming season. To-day, Feb. 20, the sugar-makers in this section begin tapping their trees, and there is every reason to look for a fair

flow of sap this year. To those who are forehanded enough to anticipate their needs we will make the following prices subject to stock on hand at the time shipment is desired:

Single 1-gallon cans or six-gallon cans in a case, at \$1.25.

Two to ten cases of six 1-gallon cans, at \$1.15.

Larger quantities of 75 to 100 gallons at \$1.10.

Pure rock-maple sugar in lots of 1 to 50 lbs., at 15 cts. per lb.

Pure rock-maple sugar in lots of 50 or more lbs. at 14 cts. per lb.

Orders will be filled in rotation or as nearly as possible, depending on the size of the order. Our inspection will be much more rigid than formerly, so that you need have no fear of getting an off-grade of syrup. By the United States standard, 11 lbs. 2 1-5 oz. are required for a gallon of the fancy grade and the No. 1. For the second grade, 11 lbs. per gallon is required. Many of our readers will remember that Medina County secured the gold medal at the World's Columbian Exposition. Let your order come along, as we shall undoubtedly have a fair supply by the time you read this notice.

Convention Notices

WORCESTER COUNTY BEEKEEPERS' ASSOCIATION.

Meetings held on the second Saturday of each month, except July and August, at 2 P. M., at Horticultural Hall, Worcester, Mass.

April 12, Building Up for Work, Arthur C. Miller, State Inspector, Providence, R. I.

May 10, Swarming and Requeening, Allan Laitham, Norwich, Ct.

June 14, Address, Wilfrid Wheeler, Concord, Mass., Secretary State Board of Agriculture.

Summer Field Meeting. Date, location, and program to be announced.

September 13, Address, Burton N. Gates, Ph. D., State Inspector, Amherst, Mass.

October 11, Rights of Beekeepers, Arthur Monroe, Spencer, Mass.

November 8, Comb and Extracted Honey, A. Flansberg, Marlboro, Mass.

December 13, Value of Inspection, J. L. Byard, Inspector, Marlboro, Mass.

January 10, 1914, Annual Meeting. Election of officers. Reports of officers. General discussion of year's work.

First annual convention of the Northern Michigan Branch National Beekeepers' Association will meet at Traverse City, Mich., Wednesday and Thursday, March 19 and 20, 1913. Headquarters and place of sessions at Hotel Whiting, where special rates have been given us.

OFFICERS.

President, C. F. Smith, Cheboygan, Mich.; Vice-president, Samuel D. Chapman, Mancelona, Mich.; Secretary-Treasurer, Ira D. Bartlett, East Jordan, Mich.

This is the first meeting of our association as a branch of the National Beekeepers' Association. We want it to be a success; and to make it so requires a goodly attendance of enthusiastic followers of our beloved pursuit.

These gatherings are but once each year, and I am sure you all can afford to be there. In fact, you can not well afford not to attend; so, come out, brother and sister beekeepers, and let us have a rousing meeting. Bring along some of the family or an interested friend, if possible.

You will note that we have some very liberal prizes offered for display of apianian products—first, second, and third prizes offered. I wish every one attending would bring along at least something. It makes a nice display, creates enthusiasm, and you are pretty sure of a prize of some sort if your article is at all worthy. Of course the best wins out; but you never know what you can do until you try. Don't forget the dates. IRA D. BARTLETT, Sec.

PROGRAM.

WEDNESDAY, 1 P. M.

Opening remarks, C. F. Smith.

Secretary-Treasurer's report.

Appointment of committees.

For the good of the association.

Election of officers.

Selling Honey by House-to-house Canvass, F. B. Cavanagh.

Co-operative Ideas for Michigan Apiarists, E. E. Coveyou.

Question-box.

Foul-brood report, E. B. Tyrrell, State Inspector of Apiaries.

Talk on Foul-brood legislation, E. M. Hunt.

Illustrated lecture on beekeeping and fruit-growing in Western Michigan, Western Michigan Development Bureau.

THURSDAY, 8:30.

National affairs; also soft candy for bee feed, E. D. Townsend.

Reminiscences of the supply business, A. G. Woodman.

Getting all the honey from the cappings, its disposition, and wax craft, Ira D. Bartlett.

How I disposed of my 1912 crop of comb honey, George Jaquays.

Question-box.

THURSDAY, 1 P. M.

Open session until train time.

PRIZES.

BEST 5 SECTIONS OF COMB HONEY.

1. \$4.00 in bee supplies, presented by M. H. Hunt & Son, Lansing.
2. \$2.00 in bee supplies, M. H. Hunt & Son.
3. Advanced bee-veil, A. G. Woodman Co., Grand Rapids.

BEST SINGLE SECTION OF COMB HONEY.

1. Dewey foundation-fastener, W. T. Falconer Mfg. Co., Falconer, N. Y.
2. *Beekeepers' Review*, National Beekeepers' Association.

BEST FIVE POUNDS EXTRACTED HONEY.

1. 1000 No. 1 sections, G. W. Lewis Co., Watertown, Wis.
2. 500 sections, A. G. Woodman Co., Grand Rapids, Mich.
3. *Beekeepers' Review*, National Beekeepers' Association.

BEST FIVE POUNDS CANDIED EXTRACTED HONEY.

1. Protection hive, A. G. Woodman Co., Grand Rapids.
2. 2 lbs. light brood foundation, W. T. Falconer Mfg. Co., Falconer, N. Y.
3. *American Bee Journal*, C. P. Dadant, Hamilton, Ill.

BEST, PUREST, AND CLEANEST SAMPLE FIVE-POUND BEESWAX.

1. 1 Hatch wax-press, A. I. Root Co., Medina, Ohio.
2. Light super foundation, W. T. Falconer Mfg. Co., Falconer, N. Y.
3. *American Bee Journal*, C. P. Dadant, Hamilton, Ill.

In judging the above, the color, body, flavor, and package will be considered. Do not put your name on the products entered, but enter it with the secretary, so that impartial judging may be assured.

I was surprised to see the number of answers I received to the small advertisement that I had in your journal of Feb. 1. I am receiving letters yet. Altamont, N. Y., March 1. PAUL QUAY.

I received the A B C and X Y Z of Bee Culture, and I am very much pleased with it. I think that, with careful reading and study, one can hardly fail in undertaking to keep bees. I am much pleased with the book; and if one did not wish to keep bees it is very interesting to study their ways. I also receive GLEANINGS every two weeks, and there is much in it one can learn. I am sure I appreciate your kindness very much in sending me the papers. Wolfe Island, Ont., Feb. 24. S. L. LANGON.

GET TOP NOTCH PRICES FOR YOUR HONEY BY USING LEWIS SECTIONS AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

ESTABLISHED 1891

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan and Cherry Sts.

San Antonio, Texas



Factory and Warehouse.

To Our Friends and Patrons

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as those engaged in the business.

Owing to the constantly increasing demand for comb foundation and beekeepers' supplies, we have again been compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past year, our sales having aggregated approximately \$100,000.00.

Although it has been found a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the 5 $\frac{3}{8}$ -inch frames, same as described in our catalog, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the 10-frame hives.

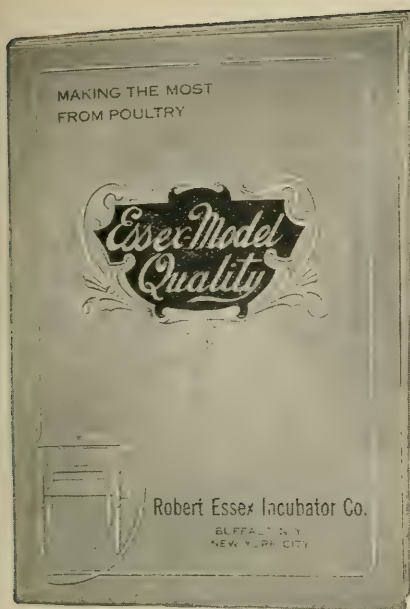
Shortly before the death of Mr. Mayfield Mr. Udo Toepperwein sold his interest to Messrs. R. W. Hearne and B. L. Raborn, well-known business men of San Antonio. The retirement of the older members of the company will in no way change the policies of the new management except to increase materially the capital with the view of carrying a large stock of supplies. Mr. Morris, who has been practically the manager of the Toepperwein & Mayfield Co., continues with the new management.

It is the intention of the new management to increase materially the capital of the company, with the view of carrying a stock of supplies that will meet all the requirements of the trade. This will enable us to effect prompt shipments at all times, and thus avoid any delay and annoyance to customers on account of shortage of stock.

It will be our endeavor to accord our customers all possible courtesies and consideration in any matters that may arise. Mistakes will occur at times, as is only natural, and we only ask that they be brought to our attention so that they may be rectified. Our customers may be assured of the best quality of goods at as reasonable prices as are consistent with business methods.

Our new catalog on request. Address

TOEPPERWEIN & MAYFIELD CO., - San Antonio, Texas.



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You are using for a simple job, a piece of machinery twenty times too big.

"EGG SECRETS" is a booklet written especially and exclusively for the owner of a few hens—most likely a beginner. It is at present the **ONLY** reliable and up-to-the-minute handbook for back-yard chicken raisers.

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These are facts. Don't let any thing that you've heard, or some neighbor's experience sway you. Some people couldn't raise English sparrows. Bear in mind that there are many thousands of people who *are* running back-yard egg factories successfully—who are eating their own fresh eggs daily while you are getting the cold-storage variety at exorbitant prices.

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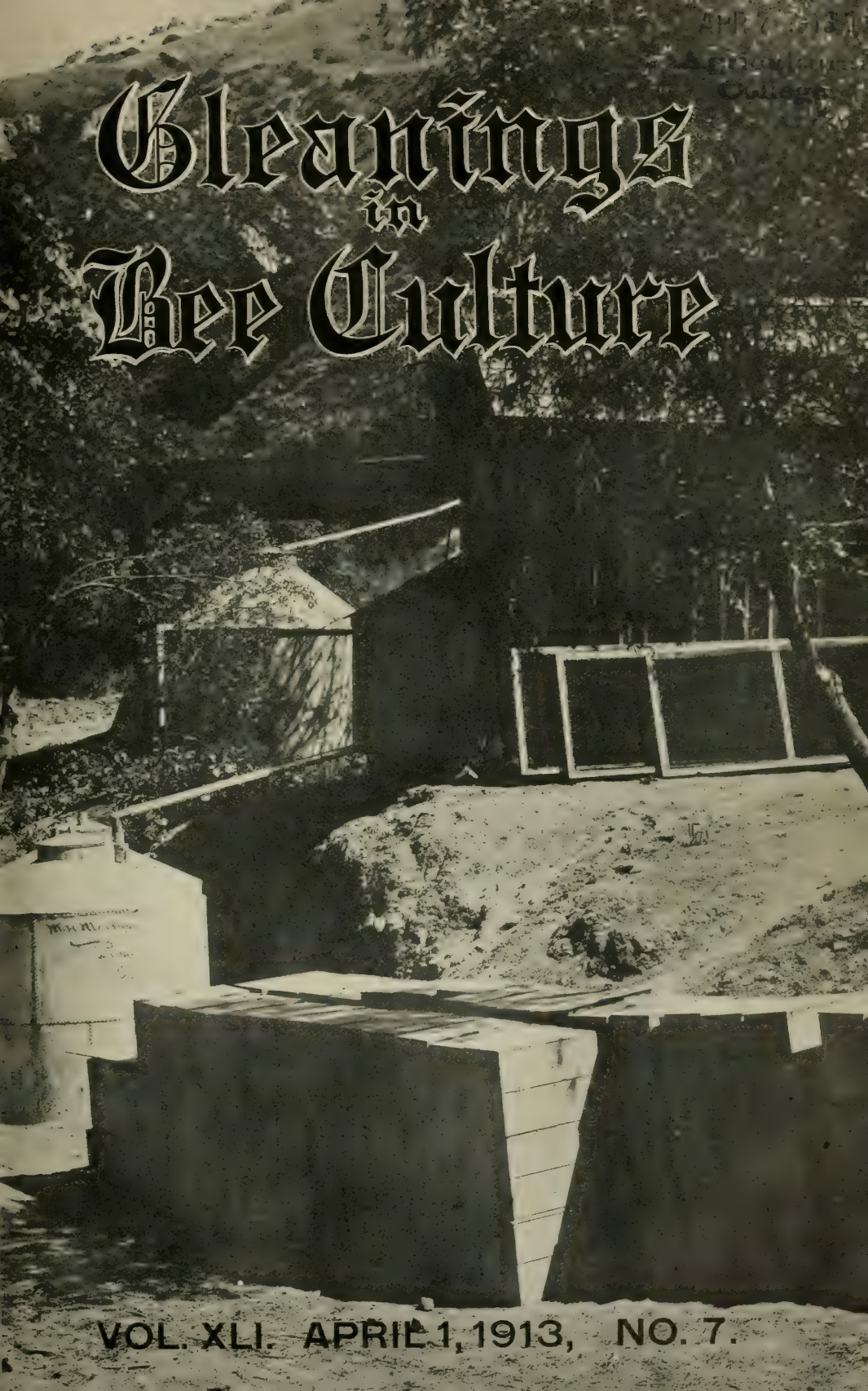
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Gleanings in Bee Culture



VOL. XLI. APRIL 1, 1913, NO. 7.

Gleanings in Bee Culture

One Year

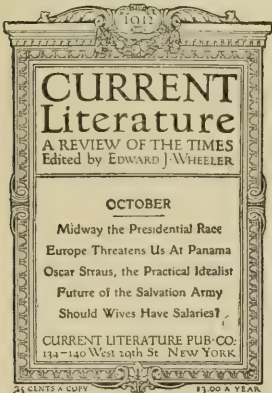
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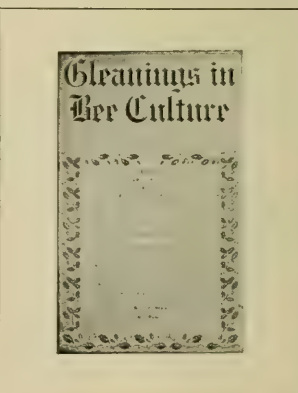
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HOUSE BEAUTIFUL (Three Months).—An illustrated magazine of practical interest filled with suggestions concerning home making, building, interior decorations, furnishing, and gardening.



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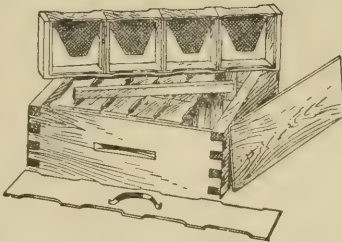
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How's your supply of supers? Don't let swarming season catch you without a supply. If you haven't enough for the coming season it would be a good plan to place your order now. It isn't very pleasant to get caught in the rush without supers; and every day that you lose means dollars in honey lost.



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No. 1 super,	75c	\$3.50	\$6.80
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The "Falcon" No. 1 super holds slotted section-holders, wood separators slotted both edges, follower, springs, $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ beeway sections, inch-wide foundation starters, and nails. The No. 2 is the same as No. 1 without sections and foundation starters.

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	1	5	10
No. 1 super,	80c	\$3.75	\$7.30
No. 2 super,	60c	2.75	5.30

The price of supers holding $4 \times 5 \times 1\frac{1}{2}$, $4\frac{1}{4} \times 1\frac{1}{2}$, $3\frac{3}{4} \times 5 \times 1\frac{1}{2}$ plain sections is the same as the $4\frac{1}{4} \times 1\frac{1}{2}$ style. When ordering, specify style of sections.

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Beeswax taken in exchange for supplies or cash.

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HIGH HILL, MO.

DO YOU LOVE SWEETS? RALPH WALDO EMERSON DID

He said you can attain to royalty by loving sweets.

"He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

"HOW to come at these?"
Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*.

Want to know how?
Send \$1.00 for a year's subscription to

The Guide to Nature Arcadia, Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—Fancy and No. 1 white comb honey, 16 to 17; fancy white extracted 12 to 13. Beeswax, 30.

Boston, March 18.

BLAKE-LEE CO.

DENVER.—We quote comb honey in a jobbing way at the following figures: No. 1, \$3.05; choice, \$2.90; No. 2, \$2.70, per case of 24 sections. Extracted honey, white, 9; light amber, 8; strained, 6½ to 7. We pay 28 cts. in cash and 30 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Denver, March 18. FRANK RAUCHFUSS, Mgr.

CINCINNATI.—The demand for both extracted and comb honey is very good, and we are selling fancy double-decker comb honey at \$3.75 to \$4.00 a case; fancy extracted honey in 60-lb. cans, at 9 to 10; amber extracted in barrels, 6½ to 8, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying from 28 to 30 cts. a lb., and if taken out in trade, 2 cts. per lb. more.

Cincinnati, March 20. THE FRED W. MUTH CO.

LIVERPOOL.—We quote set California honey at \$9.60 to \$10.20, and \$11.04 to \$12.00 for liquid. Retail sales are at the latter figure. Thirty kegs of Jamaican sold at \$6.72 to \$7.20. There have been no sales of Chilian on spot. Some 250 barrels of March and April shipment sold at \$6.24, O. I. F. continent. New-crop basis pile 3. Of beeswax, 30 bags of Chilian sold at \$35.88 per cwt. One ton, March and April shipment, sold at \$34.22 per cwt., C. I. F.

Liverpool, March 1.

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Send us a list of the Bee Supplies you want.

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If you are wanting any special goods, orders should be made at once. Other cars will be coming from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

The mailing of our new catalog is completed. If you are not on our mailing list send us a postal-card request for this catalog.

If you want to buy in quantities considerable larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line, and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder—the best in the market. Write for our catalog.

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Gleanings in Bee Culture

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Editor Home Dept.

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J. T. CALVERT
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DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order, or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Honey reports continued from page 2.

KANSAS CITY.—The supply of comb honey is very light, demand good. The supply of extracted is good, demand light. We quote No. 1 white comb, 24 sections, \$3.25 per case; No. 2 ditto, \$3.00; No. 1 amber comb, ditto, \$3.00; No. 2 ditto, \$2.75; extracted white, per lb., 8 to 8½; extracted amber, 7 to 7½; beeswax, 22 to 25.

C. C. CLEMONS PRODUCE CO.
Kansas City, Mo., March 19.

CHICAGO.—The supply of comb honey on this market is very light at this writing. All of the better grades have been marketed. Indeed, there is very little of any kind now offered. Prices range from 16 to 17 for the best grades, and the amber grades from 13 to 14, with the fancy light amber bringing 15. There remains quite a liberal supply of extracted honey, but it is being gradually reduced. Prices for the white clover and lindens range from 9 to 10; other white honeys 8 to 9, with the amber grades having a range of from 6 to 9, according to source, body, and flavor. There is a demand for sage honey, and what little is obtainable sells readily. Beeswax is steady at from 30 to 32, according to color and cleanliness.

Chicago, Ill., March 17. R. A. BURNETT & CO.

ST. LOUIS.—Since our last, of March 5, there has been barely any change noticeable in the honey market, and there is by no means any improvement in the prices or the demand. The quotations which we give to-day are more or less nominal. We quote fancy white comb honey at 16 to 17; No. 2 white, 15; light amber 13 to 14; by the case, fancy white brings \$3.65 to \$3.75; No. 2, \$3.40 to \$3.50; amber, \$2.75 to \$3.25, according to quality. Dark or broken honey is almost unsalable, no matter what concessions are made. Extracted Southern in barrels and half-barrels is quotable at 6½ to 7 for light amber; in 5-gallon cans at 7 to 7½; California, Utah, and Colorado honey, white, brings 9 to 9½; light amber, 8½, all in 5-gallon cans. Beeswax is in good demand at 30 cents for prime. Inferior and impure sells for less.

St. Louis, Mar. 19. R. HARTMANN PRODUCE CO.

G. B. Lewis Co. Make of Beekeepers' Supplies at Factory Prices.

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And now I want to thank you for what you said, and I assure you that as soon as possible I will return the favor, not only to you but your many interesting readers, who have written so many good and cheering letters to me. I declare I don't know just how to express myself over the matter, but I must feel something as a great "big-hearted" fellow feels over a good old-fashioned hand-shaking at the close of a good meeting, when the good spirit is at its best ebb.

J. J. WILDER, Bradentown, Fla.

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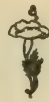
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Folks Like Michigan Comb Honey

However it is so scarce that they can not get any. It is a case of under-production. It will pay YOU TO MAKE THIS YEAR A COMB-HONEY YEAR. Pages 12 and 13 of our catalog show comb-honey outfits. They're Root's goods too. . . . Beeswax wanted.

M. H. HUNT & SON, LANSING, MICHIGAN
OPPOSITE LAKE SHORE DEPOT



We are booking orders for Italian bees by the pound, with or without queens. . . Write for prices on quantity wanted.



FRUIT-GROWERS!

Send 10 names of fruit-growers and 10 cents, and get "The Southern Fruit Grower" four months. Tells all about fruit-growing, gardening, poultry-raising, etc., in the South. Contains from 32 to 40 pages each month. Address

THE SOUTHERN FRUIT GROWER
Dept. BC, Chattanooga, Tenn.

BEES AND SUPPLIES

You will soon need a bill of supplies. Let us quote you before placing your order. We please thousands, why not you? Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Aplaries, Glen Cove, L. I.

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, \$1.00; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c. **E. E. MOTT, Glenwood, Mich.**

BEE SUPPLIES

NONE BETTER . . . 35 YEARS OF EXPERIENCE

1 Ideal Winter-case, complete	\$2.50
100 Hoffman Brood-frames, in flat	2.50
500 No. 1 Sections	2.50
100 Section-holders, scalloped	2.00
100 Section Slats, quarter inch	1.00
1 Champion Smoker	.70
Dadant's Foundation:	
Medium Brood, per pound	.59
Thin Surplus, per pound	.66
Extra Thin, per pound	.69

Discount on larger amounts.
Satisfaction guaranteed or money refunded.

R. H. SCHMIDT, Rt. 3, Box 209, Sheboygan, Wis.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributer. **G. B. Lewis Company, Watertown, Wis.**

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

We have made arrangements with a large Southern breeder to furnish us with BEES and QUEENS, and orders will receive our prompt attention commencing April 1. First come, first served. Be first.

ORDER BEE-SUPPLIES NOW.—Large car of new goods on the way to fill the rush of early orders coming in. Send your orders now.

POULTRY FEEDS AT WHOLESALE.—Write for special prices of feed to be shipped with your order of bee-supplies. Cut out the middle man.

BEESWAX.—We can use five tons of good first-class wax. Send yours in now. Cash or in trade. Free catalog. Ask for one.

S. J. GRIGGS & CO. . . 26 North Erie Street . . TOLEDO, OHIO

"If Goods are wanted Quick, send to Pouder."



Bee Supplies Up to Date

EQUIPMENT.—Storeroom built expressly for the business; large concrete basement with just enough moisture to prevent breakage in sections and shrinkage in dovetailed corners of supers and hives. Electric lift brings up two tons of goods to first floor in thirty seconds for shipment. Does this appeal to you?

QUALITY.—Root goods at the factory schedule of prices, whether you require one hive or a hundred. This is the quality that I have handled for nearly a quarter of a century, and the kind that you can recommend to your visiting neighbors. I MIGHT have increased my profits for a SHORT TIME by handling other goods, but I would not have remained so long in the business.

GUARANTEE.—Many articles described in my catalog can now reach you by parcel post, and I assume all responsibility in safe arrival of goods. I have the very finest tight-seal glassware for putting up extracted honey, and I guarantee safe arrival—no breakage at purchaser's loss. I have waxed-paper honey-jars that are a decided success wherever they have been used.

MY CATALOG.—My catalog describes all of these things, and contains valuable information for those who are interested. I shall be pleased to show you how promptly I can get one into your hands if you will drop me a card.

BEESWAX.—Remember me when you have wax to offer, cash or trade, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue

APRIL

The busy season for the beekeeper now begins. Unless, with wise forethought, you have already anticipated your wants, you should place your order without delay. New goods by the carload are now coming in; and, though our service is at all times the best, we can serve you now with minimum delay and maximum satisfaction.

The new catalogs are being mailed. You will soon receive one if your name is on our trade list; otherwise you will be supplied on receipt of a postal-card request. Should you desire to order in the mean time, the 1913 catalog may be used.

Like the beekeeper whose letter follows, you will be pleased with PEIRCE SERVICE and ROOT QUALITY from OHIO'S BEE CENTER.

Mr. E. W. Peirce:—I want to thank you for prompt shipment of my order. It came in good shape.

Yours truly,

ALVA E. MOORE.

Marlinton, W. V., Feb. 22, 1913.

Mr. Moore also sends the name of a friend to whom he wishes the PEIRCE catalog sent. One will gladly be mailed to any beekeeping friend whose address you will be kind enough to give.

E. W. Peirce, Zanesville, O.
136 W. Main St.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for discounts—we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

PATENTS

25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLauchlen Building, Corner
Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts

Patent Counsel of
The A. I. Root Co

Boston New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. . . . Send for catalog

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.



LINE-BRED

CARNIOLAN QUEENS

Selected and bred according to the most powerful method known to intensify and perpetuate the good qualities of the breeding queen. . . . Orders booked now for June delivery. Untested, \$1.00 each; \$9.00 per doz. Tested, \$1.50 each. Breeders (1912 rearing), \$10.00. Ask for our paper, "Superiority of the Carniolan Bee." It's free.

ALBERT G. HANN, PITTSSTOWN, NEW JERSEY
Carniolan Queen Breeder

Pure Golden Italian Queens

Better than Last Year

Mated, \$1.00; select mated, \$1.50; select tested, \$3.00; breeders as high as \$50.00. Send for booklet, and get the best. . . . My breeders produced over 200 pounds of surplus each last year. Try them and see what they will do for you.

GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

How to Produce Extracted Honey

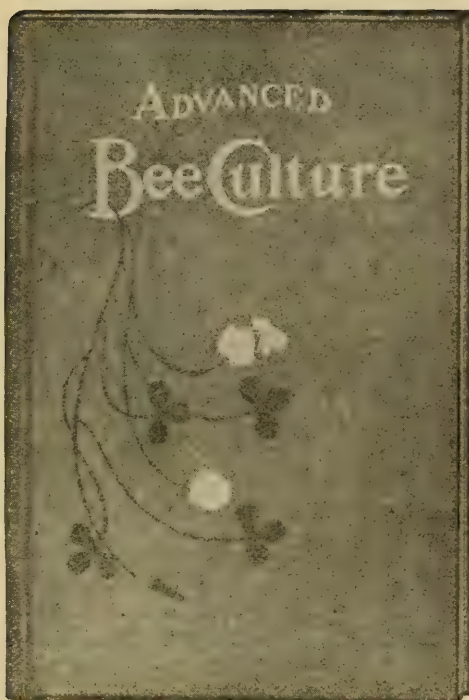
THIS is the title of a neatly printed, illustrated booklet, the second edition of which has just been published. Each operation in the process of extracted-honey production is explained in detail with photographic reproductions and drawings to make the text more plain. Beginning with the chapter on "Preparing Colonies for the Honey-flow," the booklet concludes with a description of "Packages for Extracted Honey." . . . Many helpful and valuable suggestions will be found within the 44 pages this booklet contains, and it is a pleasure to announce its addition to our Bee-keepers' 10-cent Library. Order by name or specify Number 25.

THE A. I. ROOT COMPANY

NEW YORK

MEDINA, OHIO

CHICAGO



Nearly 500 Subjects Pertinent to Modern Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth. A volume whose appearance and unquestionable worth justify its title to a place in the library of every beekeeper. No more important work on this fascinating subject has recently appeared.

The untimely death on May 30, 1911, of Mr. W. Z. Hutchinson, author of

Advanced Bee Culture

marked the passing of one of the most brilliant writers who have ever championed the cause of the honey-bee. . . . Perhaps no better tribute to this talented man could be given than that contained in the following paragraph from a testimonial article on Mr. Hutchinson's life by Prof. A. J. Cook, in *Gleanings*:

"No one could know him and his work without convincing proof that he stood in the very front ranks of our beekeeping fraternity. His quick intellect, coupled with his close attention to details, won for him, at the very start, phenomenal success as a queen-breeder. To this, apiculture owes its great good fortune in securing his life-long service in its development. He was temperamentally exact and methodical, transparently honest, and if I were to select one word to characterize our brother it would be genuineness. He was delightfully companionable, and always alert for any new idea or suggestion touching the interests of the work to which he was so entirely devoted. His quick apprehension, and terse clear-cut style as a writer, made him a most reliable exponent of all that was latest and best in the theory and practice of his beloved art."

Most fortunate for all beekeepers is the fact that Mr. Hutchinson's life was spared just beyond the point when he had completed his reading and correction of the editorial proofs of the new edition of *ADVANCED BEE CULTURE*. Only a few short days after an editorial by Mr. E. R. Root, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book, had appeared, the call came, and this sterling, upright man, whom everybody loved, was taken home. Read what Mr. Root has to say of Mr. Hutchinson's book:

As a writer on bees Mr. Hutchinson has few equals. For clearness and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by the master of the art of boiling down discussions. I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced beekeeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it up in connection with some other work like the "A B C and X Y Z of Bee Culture," or any text-book designed especially for the beginner class.

\$1.50 Buys a Two-dollar Value

ADVANCED BEE CULTURE costs \$1.00 per copy. *GLEANINGS IN BEE CULTURE* (semi-monthly)—known and read by beekeepers throughout the world—\$1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination—the book here described, and *GLEANINGS*, one year, both for \$1.50. It is a value you will very seldom find—really it is a good \$2.00 worth for \$1.50.

Foreign postage, 60 cents extra; Canadian postage, 30 cents extra.

Notice! Queens!

Ready to Mail April 1

Three-band Italians only, at the following prices: Untested, 90 cts. each; 12 for \$9.00; 100 for \$65.00. Tested, \$1.00 each; 12 for \$10.00. I have a few fine breeders at \$5.00 each.

On all queens purchased of me I guarantee them to give entire satisfaction. I use the best-known methods of rearing queens. My original stock was from Root's strain and other prominent breeders, and I keep adding imported blood to my apiaries.

I hold 92 first, 45 second, and 2 third prizes on my bees and queens and products of my apiaries. This speaks for itself. The best possible to obtain. My three-banders carried off first prize again at Dallas and Waco last fall.

I will have from 500 to 1000 mating-nuclei. I also sell nuclei. If interested write for circular and price list describing my bees and queens. It is free.

B. M. Caraway, Mathis, Texas
Queen-breeder

"QUEENS"

.. FROM ..

**The Penn Company,
of Penn, Lowndes
County, Mississippi**

**"GOLDEN" and "THREE-
BANDED" ITALIAN
QUEENS**

Unsurpassed for Gentleness and
Working Qualities, and World
Beaters as Honey Gatherers.

Queen Circular on request
by Return Mail

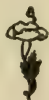
The Penn Co., Penn, Miss.

... THE ...

KENNARD HOUSE

Cor. West 6th and St. Clair Sts.

CLEVELAND, O.



In the Wholesale District
100 Outside Rooms
\$1.00 per Day and up
European Plan
50 Large Sample Rooms
Handy to Everywhere

W. H. LAWS

is again ready to fill your orders for queens the present season. Law's Red-clover Italians are as good as can be had.

One firm who bought over 1100 queens from me in 1912 says, "Your queens are very satisfactory." We are booking orders now, and we are going to do our level best to mail all queens by return mail when so ordered. My bees are absolutely clean and free from all disease.

Queens sent out under the usual guarantees. Prices: Single queen, \$1; six for \$5. Breeding queens, none better, each, \$5.

W. H. LAWS, BEEVILLE, BEE COUNTY, TEXAS

Taylor's Three-banded Italian Queens

are now Ready to go by Return Mail

We have hundreds of fine testimonials about our queens. Untested, \$1.00 each or \$9.00 a doz. Tested, \$1.25 each or \$14.00 a doz. Select tested, \$1.50 each or \$16.00 a doz. Breeders, the very best, from \$3.00 to \$5.00 each. No better queens raised. Send all orders to

J. W. Taylor & Son, Beeville, Texas

SPRING IS HERE

and soon the bees will be flying, breeding, and increasing in strength. . . Swarming will then take place. . . Are you prepared for the increase? . . Be,forehanded, and have your hives all ready. . . We carry a large line of hives and other goods. Our catalog for 1913 is now ready for mailing. A copy will be sent you on request.



THE A. I. ROOT CO., SYRACUSE, N. Y.

WANTED ONE HUNDRED TONS OF BEESWAX

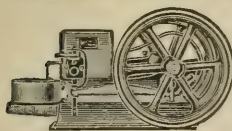
For Our 35th Season's Run of

Dadant's Foundation

Get our prices before selling your wax. Get our prices before buying your foundation and supplies. No shipment too large. No shipment too small. Send for OUR PRICES on working wax into foundation, also catalog of supplies. . . Write TODAY.

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The Witte is conceded the best engine in America. Made by E. H. Witte, master builder for 25 years. Ask any Witte user. Any size from 1½ to 40 horse-power all tested to ten per cent overload. 61 special advantages.

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Cuts Gasoline
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Planet Jr.
No. 76 Pivot-wheel Riding Cultivator, Plow, Furrower, and Ridger is a wonder in cultivating corn, potatoes, and similar crops. Light in

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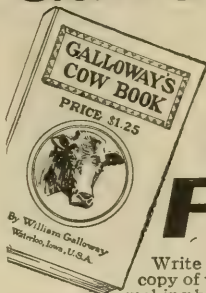
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Points the way to better crops, and describes 55 latest tools including one- and two-horse cultivators, wheel-hoes, seeders, harrows, etc.

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Get My Great Separator Offer, Too!
90 Days' Trial FREE!



Besides, I want to tell you about the great 90-day free trial offer I am making on the new Galloway Sanitary Separator—the most wonderful separator ever placed on the market! It's the latest and greatest production of my great factories—puts every other separator in the world twenty years behind the times. I don't ask you to take my word. Take the separator, use it three months—then, if you think you can get along without it, ship it back and I'll pay freight charges both ways.

Special 1913 Offer—If you write at once I'll tell you in a personal letter how you may get one of my new separators either partly or entirely free. No canvassing. No soliciting.

Send NOW! Don't wait—Send a letter or postal for this valuable free book and my great separator offer—TODAY!
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1683 Galloway Station, Waterloo, Iowa

PAINT WITHOUT OIL

**Remarkable Discovery that
Cuts Down the Cost of Paint
Seventy-five Per Cent.**

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A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 8 North St., Adams, N. Y., and he will send you a free trial package, also color-card and full information showing you how you can save a good many dollars. Write to-day.

CANS for FRUITS, SYRUPS and HONEY

AT VERY
LOWEST PRICES

Also Labels, Solder and Supplies

We ship any size order

Write today for illustrated price list stating kind and quantity wanted.

NATIONAL CAN COMPANY, Dept. 6 BALTIMORE, MD.

Use KEROSENE Engine Free!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.

Gasoline GOING UP!

Gasoline is 9c to 15c higher than coal oil, and still going up. Two pints of coal oil do work of three pints gasoline.

AMAZING "DETROIT"

—only engine running on coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Only three moving parts —no cams—no sprockets—no gears —no valves—the utmost in simplicity, power and strength. Mounted on skids. All cylinders cannot carbonize sizes, 2 to 20 h. p., in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT," thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, you get Special Extra-Low introductory price. Write (138)

Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich



The "BEST" LIGHT
MAKES AND BURNS
ITS OWN GAS
Brighter than electricity or acetylene.
Cheaper than kerosene. No dirt, grease
nor odor. Over 200 styles.
Agents Wanted. Write for catalog.
THE BEST LIGHT CO.
306 E. 5th St., Canton, O.
300 CANDLE POWER



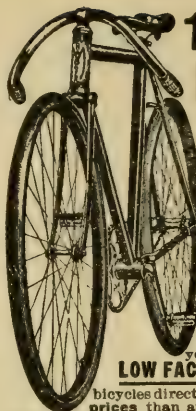
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41 INCHES HIGH
100 other styles of
Farm, Poultry and
Lawn Fencing direct
from factory at save-the-
dealer's-profit-prices. Our
large catalog is free.

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**21
CENTS
A ROD**

BROWN FENCE **BIG BARGAINS**
in Fence. 150 styles—
13 cents per rod up. We pay
freight. Send for bargain fence
book and sample to test—ALL FREE.
THE BROWN FENCE & WIRE COMPANY
DEPT. 91 CLEVELAND, OHIO



10 DAYS FREE TRIAL

We will ship you a "RANGER" BICYCLE on approval, freight prepaid, to any place in the U. S. without a cent deposit in advance, and allow 10 days' free trial from the day you receive it. If it does not suit you in every way and is not all or more than we claim for it and a better bicycle than you can get anywhere else regardless of price, or if for any reason whatever you do not wish to keep it, ship it back to us; our expense for freight and you will not be one cent out.

LOW FACTORY PRICES

We sell the highest grade bicycles direct from factory to rider at lower prices than any other house. We save you \$10 to \$25 middlemen's profit on every bicycle. Highest grade models with Puncture-Proof tires, Imported Roller chains, pedals, etc., at prices no higher than cheap mail order bicycles; also reliable medium grade models at unheard of low prices.

RIDER AGENTS WANTED

In each town and district to ride and exhibit a sample 1913 "Ranger" Bicycle furnished by us. You will be astonished at our wonderfully low prices and the liberal propositions and special offer we give on the first 1913 sample going to your town. Write at once for our special offer. **DO NOT BUY** a bicycle or a pair of tires from anyone at any price until you receive our catalogue and learn our low prices and liberal terms. Bicycle Dealers, you can sell our bicycle under your own name plate at double our prices. Orders filled the day received. Second-Hand Bicycles—A limited number taken in trade by our Chicago retail stores will be closed out at once at \$3 to \$8 each. Descriptive bargain list mailed free. **TIRES, COASTER-BRAKE** rear wheels, inner tubes, lamps, cyclometers, parts, repairs, and everything in the bicycle line at half usual prices. **DO NOT WAIT** but write today for our Large Catalogue beautifully illustrated and containing a great fund of interesting matter and useful information. It only costs a postal to get everything. Write it now. **MEAD CYCLE CO., Dept. C 113 CHICAGO, ILL.**



WHITENASHING

and disinfecting with the new
"Kant-Klog" Sprayer

gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, etc. Agents Wanted. Booklet free. **Rochester Spray Pump Co.,** 207 Broadway, Rochester, N. Y.



4 BUGGY WHEELS FREIGHT PAID STEEL TIRES \$8.75

With Rubber Tires, \$18.45. Your Wheels Rerubbered, \$10.30. 1 make wheels 3 1/2 to 4 in. tread. Tops, \$6.50. Shafts, \$2.10. Repair Wheels, \$5.95. Axles \$2.25. Wagon Umbrella free. Buy direct. Ask for Catalog, 47

SPLIT HICKORY WHEEL CO., 547 F St., Cincinnati, Ohio.

Phelps' FREE Buggy Book



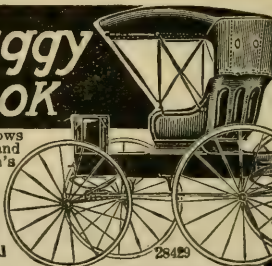
Save \$25 to \$40. Get best buggy you ever rode in. Book shows 140 styles made-to-order Split Hickory Vehicles, also full and complete line of harness. Sold direct to you, no middlemen's profit. 167,000 Split Hickories now in use.

30 Days' Free Road Test—2 Yrs. Guarantee
Auto Seat Buggies, Runabouts, Surries, Driving Carts, Carriages, Spring Wagons, etc.—all genuine Split Hickories. Get this big free book at once no matter where you buy. Phelps even pays the postage, so all you have to do is send a postal or letter tonight. Address H. C. Phelps, President.

THE OHIO CARRIAGE MANUFACTURING CO.,

Station 293,

COLUMBUS, OHIO



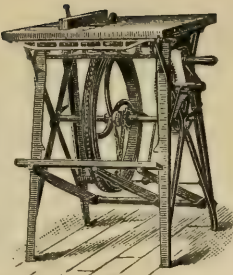
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GOOD QUALITY. SCIENTIFIC WORKMANSHIP
CAREFUL PACKING
EFFICIENT SERVICE

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G. B. Lewis Company, Watertown, Wis.

BARNES'
Hand and Foot Power
MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.



Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.,
545 Ruby St.,
ROCKFORD, ILLINOIS.



\$7.55 Still Buys
World's Champion
140-Egg Incubator

Double cases all over; best copper tank; nursery, self-regulating. Best 140-chick hot-water brooder, **\$4.85**. Ordered together, **\$11.50**. Freight Paid (E. of Rockies). No machines at any price are



better. Satisfaction guaranteed. Write for book today or send price now and save time. **Jim Rohan, Pres.**
Belle City Incubator Co., Box 69, Racine, Wis.

What Sprayer?

Use the sprayer that does the most work most thoroughly at the lowest cost.

Brown's Auto Spray

No. 1 fitted with Auto Pop Nozzle—most powerful and efficient hand outfit. Capacity 4 gallons. For large sprayers—Brown's Non-clog Atomic Spray. Write for low prices and *Free Spraying Guide*.
The E. C. Brown Co., 20 Jay St., Rochester, N. Y.



HEAVY-ROOTED TREES

Shrubs, Vines, and Plants our Specialty. Nine-tenths of your success after planting depends on the roots. Our method of growing stock fully explained. Write us to-day. Special trial offer for \$1.00, prepaid: 50 Catalpas, 50 B. Locust, 25 Am. Elm, 10 Barberry, 3 Bridal Wreath. All first-class stock.
E. C. PIKE & CO., Nurserymen, Box 1, St. Charles, Ills.

GRAPE VINES

Gooseberries and Currants. Best varieties and finest grade of stock. Guaranteed true. **FREE BOOK** Prepared to meet the demands of large and small growers and country estates. Largest growers of grape vines and small fruits in the country.
T. S. HUBBARD CO., Box 33, Fredonia, N. Y.

850,000 GRAPEVINES

69 Varieties. Also Small Fruits, Trees, etc. Best Rooted Stock. Genuine, cheap. 2 sample vines mailed for 10c. Desc. price-list free. **LEWIS ROESCH & SON, Box A, Fredonia, N. Y.**



Greider's Fine Catalogue

and calendar of pure-bred poultry for 1913, large, many pages of poultry facts, 70 varieties illustrated and described. Incubators and brooders, low price of stock and eggs for hatching. A perfect guide to all poultry raisers. Send 10 cents today.

B. H. GREIDER, Box 65, Rheems, Pa.

Lexington Hotel

500 Rooms **European Plan**
Michigan Boulevard & 22nd St.
Chicago, Ill.



The Lexington is located just outside the congested business district, yet within ten minutes' ride on two electric lines which pass the hotel.

We have three of the best Cafes in the City, and prices are reasonable.

Write us for booklet or to make reservation.

M. & M. Hotel Company, Proprietors,
T. V. Strain, Manager.

Wanted!



Johnson wants every bee keepers name and address at once. He will send you the famous **Old Trusty Incubator Book**, free—worth at least \$1.00.

A Postal Brings Johnson's 1913 Old Trusty Book, Free

Tells about the incubator sensation of the world, 400,000 sold—all making big money for owners. Tells about 30 to 90 day free trial offer, 10 year guarantee. Price is less than \$10.00, freight paid east of Rockies and allowed that far to points beyond. Raise chickens in spare time. Read all the facts—see hundreds of photographs. Don't miss it. Mail a postal now to



Johnson's new book is a real love story about chickens. Every bee keeper ought to read it for profit. Sent free on request.

Less Than \$10

Johnson Incubator Man
Clay Center, Neb.

YOUR HENS YOUR FARM YOUR MONEY

Farmers and Fanciers

should get the **FREE POULTRY BOOK** and Catalogue written by **ROBERT ESSEX**, well known throughout America. After 25 Years With Poultry. It tells **How to Make Most From Eggs** and Hens for Market or Show, contains **Pictures of 30 Poultry Houses**; tells cost to build; describes **AMERICA'S LARGEST LINE OF INCUBATORS AND BROODERS—\$2.25 to \$48 each**. Write today.

Robert Essex Incubator Co., 81 Henry St., Buffalo, N. Y.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Raspberry-clover honey in new 60-lb. cans at 9 cts. Same, 5 cts. J. D. HULL & BRO., Honesdale, Pa.

FOR SALE.—Finest quality clover and clover-bass-wood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

We have just received a large shipment of extracted white-clover honey from a prominent producer. This honey has a very heavy body, and was well ripened before it was taken off the hives. We ship it, if preferred, in liquid form without extra charge, in new tin cans holding five gallons each, two cans in a case. Ask for free sample of lot 81, and our price. We have some fine fall amber extracted. An early fall flow caught a producer before he could get his white honey off, so his crop had to be graded as amber. Free sample and the price for asking. Lot No. 69. THE A. I. ROOT CO., Medina, Ohio.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 173 So. Water St., Chicago.

WANTED.—Comb, extracted honey, and beeswax. Write us. HILDRETH & SEGELKEN, New York.

WANTS AND EXCHANGES

WANTED.—To buy 50 to 200 colonies of bees. DEXTER CARDER, Rt. 2, Ludlow, Ky.

WANTED.—To buy 100 colonies of bees. DAVID RUNNING, Filion, Mich.

WANTED.—Quotations on beeswax F. O. B. New York. J. F. MCCARTHY, Box 8, Haverhill, Mass.

WANTED.—Bees and locations for bees; all particulars. H. L. CAPELLE, Lake City, Minn.

WANTED.—Carload of bees for May delivery, from this or nearby State. W. J. MANLEY, Sandusky, Mich.

WANTED.—Raw furs, honest prices, honest grades. GEORGE E. KRAMER, Valencia, Pa.

WANTED.—Second-hand empty beehives. "Key," 3613, GLEANINGS IN BEE CULTURE, Medina, Ohio.

WANTED.—Ten colonies of bees in ten-frame hives. E. A. SCHNALE, Sanborn, Iowa.

WANTED.—Bees for cash. Give price and number of colonies for sale. W. C. DAVENPORT, 6129 N. Paulina St., Chicago, Ill.

WANTED.—Bees by the pound in May, with young laying queen to each pound. THE ROCKY MOUNTAIN BEE CO., Forsyth, Montana.

WANTED.—To exchange 60 foul-brood dovetailed hives for 4 to 5 H. P. gasoline engine. 13494 A. G. A., care GLEANINGS, Medina, Ohio.

WANTED.—Kodak, typewriter, 22-rifle. Watch and books in exchange for seeds, plants, and bulbs. JACOB MCQUEEN, Baltic, Ohio.

WANTED.—250 or less colonies of bees, any style hive or box. For sale, 250 painted dovetailed supers for 4½ sections, at 25 cts. each in lots of 25 or more. Correspondence solicited.

A. W. SMITH, Birmingham, Mich.

FOR SALE

A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. THOS. LITZ, Osceola Mills, Pa.

FOR SALE.—An extractor. Inquire of R. EMERY, Plymouth, Ohio.

Special low price on all grades of foundation to close out. A. G. ANDERSON, Holden, Mo.

FOR SALE.—100 twin mating-boxes with drawn combs, 50 cts. each. WALTER S. HOSS, Rt. 2, Martinsville, Ind.

A bargain—625 Danz. section-holders; 730 Danz. fences, used but once. JOHN DEMUTH, Pembroke, N. Y.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case. C. H. W. WEBER & CO., Cincinnati, Ohio.

FOR SALE.—Beekeepers' supplies; bees and honey. The only satisfactory hive for this climate. Write for circular. A. E. BURDICK, Sunnyside, Wash.

For Sale or Trade.—Automobile and trailer, in A1 condition; want bees and hives. Have auto truck, so no longer need above outfit. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

Root's goods at Savannah. The logical center for your orders. The quality is unexcelled. Service accurate and prompt. Catalog gladly. L. W. CROVATT, Box 134, Savannah, Ga.

Bee supplies for all southern Idaho and east Oregon beekeepers, wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest. C. E. SHRIVER, Boise, Idaho.

Best No. 1 sections. 1000, \$4.40; 2000, \$8.60; 3000, \$12.60; 5000, \$20.00. No. 2, 50 cts. less; plain, 25 cts. less. White-pine hive, 1½-story, eight-frame, \$1.45; 10-frame, \$1.60; 100 Hoffman frames, \$2.60; 100 extracting frames, \$1.75. Catalog free. Bees for sale. H. S. DUBY, St. Anne, Ill.

FOR SALE.—One Huther Bro.'s 8-inch groover or dado head; cuts ¼ to 1 in. by 1-16; used but little, with one-inch hole, \$10; cost \$12.30. One 12-inch rip-saw, 75 cts.; one 10-inch cutoff saw, 75 cts.; one 8-inch cutoff saw, 50 cts.; one saw-mandrel for same, with 2½-inch pulley, \$2.00, or the lot for \$14. M. C. SILSBEE, Haskinsville, N. Y.

ALFALFA SEED.—Yellow as gold. Northern grown, non-irrigated Montana seed from center of Cow Creek Valley; 99½ per cent purity test by Ohio Experiment Station. A limited amount of this choice seed, \$11.50 per bushel. New sacks charged at twenty cents. Pure seeds only. AMBROSE & KNIGHT, Urbana, Ohio.

REAL ESTATE

Old Homestead Pennsylvania farm, 108 acres, best in neighborhood; one mile to school and church; has \$1000 worth of timber on stump. Price \$3000. H. S. THOMPSON, 263 Robinson St., Binghamton, N. Y.

BEES AND QUEENS

Golden Italian queens, Untested, \$1.25 each.
J. B. CASE, Pofft Orange, Florida.

FOR SALE.—12 colonies of bees in good hives, both in good condition. R. B. HUGH, Lowville, N. Y.

FOR SALE.—50 to 300 colonies, eight-frame, good condition. E. F. ATWATER, Meridian, Idaho.

Extra fine Italian queens, each 90 cts., all warranted, delivery beginning April 1.
F. HUGHES, Gillett, Ark.

FOR SALE.—Just-hatched Italian bees, ½ lb., \$1.25; 1 lb., \$2.00; 3 lbs., \$4.50. Untested queen, \$1.00; tested, \$2.00. Nuclei, \$1.25 per frame.

THE STOVER APIARIES, Mayhew, Miss.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address:
DEROY TAYLOR, Box G, Lyons, N. Y.

Tested Italian queens, reared last fall, vigorous and prolific; no disease; every queen guaranteed by return mail, \$1.00 each. Send for price list.
J. W. K. SHAW & Co., Loreauville, Iberia Par., La.

FOR SALE.—Fine Italian queens. Untested, 75 cts.; tested, \$1.00. Breeders, \$3.00 to \$10.00. Virgins, 50 cts.
CALIFORNIA BEE COMPANY,
6006 Miramonte Blvd., Los Angeles, Cal.

California Italian queens, fine honey-gatherers; gentle, none better. Select untested, 75 cts.; tested, \$1.00. Full colonies in neat modern hives reasonable.
J. E. WING, Los Gatos, Cal.

Italian queens, untested, \$1.00; tested, \$1.50; breeding queens, \$5 each. Two-frame nuclei, with untested queen, \$3.00; three-frame, \$4.00.

E. M. COLLYER, 75 Broadway, Ossining, N. Y.

Do you wish to be treated right? Then send your orders for untested three-banded Italian queens to us—75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival, and the Golden Rule for all customers.

THE GOLDEN RULE BEE CO., Riverside, Cal.

Golden Italian queens of best strain, all cells built in strong colonies, no foul brood or other disease. Untested, \$1.00; tested, \$1.50. Cash with order. Booking orders now; delivery about April 15.
BEN ROBINSON, Taylor, Texas.

FOR SALE.—7 colonies of bees, 4 in Danz. hives; 3 with Hoffman frames; supers filled with foundation for comb honey. Without supers, \$21.00; with, \$25.00. No disease.
S. E. WILEY,
77 Montgomery St., Poughkeepsie, N. Y.

The Two B's of Quality! Italian bees and Sicilian Buttercups for all that is best, unexcelled. Queens, \$1.00 each; six for \$5.00. Eggs, prize-winning pen, 15 for \$5.00; "A" pen, 15 for \$3.00; 30 for \$5.00. Bred in their purity. H. WILLIAM SCOTT, Barre, Vt.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

We are now booking orders for Phelps' Golden Queens. Mated, \$1.00; doz., \$9.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. Why not get the best?

C. W. PHELPS & SON,
3 Wilcox St., Binghamton, N. Y.

There is a key to all business; and the key to successful honey production is "good" queens. We have them, and know how to raise them. Thirty-five years' experience. Three-banded Italians, 75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival and satisfaction to everybody. We handle successfully the orders of the largest producers.

THE RIALTO HONEY CO., Rialto, Cal.

Virgin three-banded Italian queens; untested, 75 cts.; tested, \$1.00. All dead queens replaced free. Ready May 15.

S. CLICK, Mt. Jackson, Va. Rt. 2, Box 16.

FOR SALE.—200 colonies of Italian bees at \$5.00 per colony, nearly all of the Moore strain—the best honey-gatherers on earth. Queens all last season's rearing. Address G. H. ADAMS,
Spring and Central Aves., Troy, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.

WM. S. BARNETT, Barnett's, Virginia.

Fine tested and select tested Italian queens of last season's rearing. Gentle three-banded stock that will increase your honey crop. Order now for spring delivery. Tested queens, \$2.00 each; selects, \$2.50.

H. C. SHORT, Winchester, Ohio.

Montana queens, bred in the Musselshell Valley. No other bees within 60 miles; foul-brood unknown; all queen candy boiled. Three-branded Italian queens, ready June 1. Untested, \$1.00; tested, \$1.50. Orders booked now. ELSO APIARY, Elso, Mont.

No spring dwindling. Bees from the Land of Flowers. By express, safe arrival guaranteed. Prices on application. "A pound of bees in March is worth a swarm in June." Also nuclei and full colonies. Queens of famous J. P. Moore stock. None better. Never any disease. EDWIN G. BALDWIN, Deland, Fla.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed.

C. B. BANKSTON, Buffalo, Leon Co., Texas.

Bees in ½ and 1 lb. packages without queen, \$1.25 and \$2.00. These are young bees, free from disease, and will greatly stimulate your weak colonies. We will make good any serious loss in transportation if the same is vouched for by your express agent. CHARLES C. SCHNEIDER, Dancy, Ala.

Italian bees by the pound or in nuclei; ½ lb. bees, \$1.00; 1 lb. bees, \$1.75; 2 lbs., \$3.25; nuclei, \$1.25 per frame. Bees ready April 1. Write for prices on queens in small or large lots, also bees in carload lots. Carload lots ready May 1.

ARVIN, Nusbaum Co., Meldrim, Ga.

We will require all our 2000 colonies this spring. We offer the one-year-old queens, removed from these hives, at 40 cents each, any quantity, Italian stock delivered any time before June 1. Untested queens, this year's breeding, 60 cents each, delivery guaranteed. Book orders now.

SPENCER APIARIES Co., Nordhoff, Cal.

FOR SALE.—Swarms! Swarms! ½ lb. young bees with untested Italian queen, shipped as 1½ lbs., \$1.75; 1 lb. young bees with untested Italian queen, shipped as 2½ lbs., \$2.25. F. O. B. here; 6, 10 cents less each. This is the best way to increase and improve your bees. Safe arrival and satisfaction guaranteed. Circular free.

W. D. ACHORD, Fitzpatrick, Alabama.

Three-banded Italian queens and bees of superior red-clover strains. No other races in my apiaries; 15 years a breeder. After May 1, untested queen, \$1.00; tested, \$1.50; best breeder, \$5.00; two-frame nucleus, \$2.50. Full colony in ten-frame dovetailed or Danz. hive, \$9.00. Add price of queens wanted with nuclei and colonies. Better book orders now. Circular free. J. W. LEIB, S. Ohio Ave., Columbus, O.

FOR SALE.—Three-banded Italian queens and packages. Best honey-gatherers. Satisfaction or your money back. No disease. Ready about April 1. One untested queen, 75 cts.; 6 for \$4.25; 12 for \$8.00. After April 15, ½ lb. bees, \$1.00; 1 lb., \$1.50; good weight; f. o. b. here by express. Add price of queens if wanted. These are young bees, so will live longer than those you have wintered.

W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

Try my famous strain of bees and queens, and be convinced that they are all I claim for them. For honey-gathering they have few equals, being bred strictly for business from the best strains that could be had, both queens and drones, as it is as important to have drones of the best as it is queens. Queens, Italian three-band, or Golden five-band, and Carniolans, bred in separate yards. Untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; 25, \$17.50; 50, \$34.00. Nuclei with the untested queen, one-frame, \$2.50; 6 one-frame, \$15.00; two-frame, \$3.50; 6 two-frame, \$20.00. Nuclei with tested queen, one-frame, \$3.00; 6 one-frame, \$17.40; two-frame, \$4.00; 6 two-frame, \$23.40. Satisfaction and safe arrival and prompt service guaranteed.

D. E. BROTHERS, Attalla, Ala.

HELP WANTED

WANTED.—First-class beeman to take charge of 600 colonies of bees in southwest Texas. Unless competent, and able to give references, don't apply. 34388 Box 1048, San Antonio, Texas.

WANTED.—Young man of good habits who does not use intoxicating liquors or tobacco to work with bees for season of 1913. State wages and experience in first letter. P. O. Cohocton, Rt. 3. M. C. SILSBEE, Haskinville, N. Y.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

FOR SALE.—Soy beans, green flowering dahlia, thornless raspberry; 20 named dahlia, \$1.00 by mail. Circular free. JACOB McQUEEN, Baltic, Ohio.

Senator Dunlap strawberry-plants. Good plants by mail, per 50, 45 cts.; 100, 75 cts.; 300, \$1.70; by express, 1000, \$3.75.

P. A. ANDERSON, Grand Mound, Iowa.

Maple syrup of finest quality, now ready for shipment. One-gallon can, \$1.15; per case of six one-gallon cans, \$6.60, F. O. B. Address C. C. PARKHURST, Rt. 1, Phalanx Station, Ohio.

DAHLIAS.—The flower for everybody. Easy to grow, sure to bloom; splendid for cutting; select colors and varieties. We will send 7 choice tubers, all different colors, including cactus varieties, named and labeled, for \$1.00, prepaid to any postoffice in the United States. Order early. AMBROSE & KNIGHT, The Seed People, Dept. A, Urbana, Ohio.

POULTRY

Buff Orpingtons, Buff Leghorns, Anconas. MARLE W. WEMMER, Jacksonville, Ohio.

Sicilian Buttercups. Best of all. Eggs for hatching. Mating list free. D. S. DURALL, Hurdland, Mo.

FOR SALE.—S. C. White Leghorn eggs for hatching, \$4.00 per 100. B. CHASE, Earlville, N. Y.

Prize-winning Barred Rocks. Write for mating list—it's free. Satisfaction guaranteed. W. H. PORTER, Sandy Lake, Pa.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free. LEVI STUMB, Richland Center, Pa.

Sicilian Buttercups. The most persistent layers and non-sitting variety. Eggs, \$1.50 and \$3.00 per 15. WALTER M. ADEMA, Berlin, Mich.

Eggs at a sacrifice from my prize-winners. Pure Kellerstrass Crystal White Orpingtons. Grand type, and pure white; \$3.00 per 15; \$5.00 per 30. JAMES R. LAMPSON, Medina, Ohio.

FOR SALE.—S. C. White Leghorns of quality, prolific layers of large snow-white eggs; 15, \$1.50.

VALLEY CITY POULTRY FARM,
Rt. 12, Grand Rapids, Mich.

FOR SALE.—S. C. Black Orpingtons, the kind that lay, weigh, and pay. My pen is headed by Black Chief Junior. Eggs for hatching now booked, \$3.00 for 15. C. L. COLE, Medina, Ohio.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.

CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties, too. Per setting of 15, \$1.00. Satisfaction guaranteed.

W. O. ROUDABUSH, Hagerstown, Md.

Eggs from prize-winning single comb Buff Orpingtons—2 special pens; Martz and Rogers strain, \$3.50 per 15; utility flock, free range, \$1.25 per 15; \$5.50 per 100. Also eggs from fawn and white Indian Runner ducks, scoring up to 94½; \$1.50 per 13; \$4.50 per 50. JAMES McKENDRICK, Glenlussa Farm, Ernie, Iowa.

INDIAN RUNNER DUCKS

Snow-white Indian Runner ducks; handsome and hardy; Fishel strain direct. Eggs for sale.

F. J. ARMSTRONG, Nevada, Ohio.

Select thoroughbred Indian Runner ducks, white and fawn. Eggs, \$1.00 per dozen; \$7.00 per 100. J. C. WHEELER, 921 Austin Boulevard, Oak Park, Ill.

True Fawn and White Indian Runner ducks. Handsome and hardy, and the best of layers. I can start you with the best. Eggs, \$1.00 per 11.

H. C. LEE, Box 254, Brooksville, Ky.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.

KENT JENNINGS, Mt. Gilead, Ohio.

Indian Runner duck eggs, 13 for \$1.00. Fawn and white, white-egg strain. Also Mammoth Black Bronze turkey eggs, 25 cts. per egg. SARAH WIDRIG, Rt. 29, Burt, Niagara Co., N. Y.

Pure Spencer Strain White Indian Runner Ducks. Wonderful layers of large pure-white eggs. Write for prices of stock and eggs.

BREEZE HILL POULTRY FARM, A. R. Williams, Prop.,
Route 4, Winchester, Ind.

Pure Spencer Strain White Indian Runner ducks. Wonderful layers of large, pure-white eggs. Eggs, \$5.00 per 12, \$25.00 per 100. Unsatisfactory hatches, regardless the cause, replaced at half price.

A. R. WILLIAMS, Winchester, Ind.

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large, pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.

C. O. YOST, Box D, Rt. 4, Winchester, Ind.

Indian Runner Duck Eggs.—A golden opportunity to secure eggs from beautiful birds, and great egg-layers, at a moderate cost; eggs, 15, \$1.00; \$6.00 per 100; eggs from large rich red S. C. R. I. Reds, same price. "How to rear and produce an abundance of eggs from the Twentieth Century Egg-machine" goes with each order. Fertility and safe delivery absolutely guaranteed.

ROB'T BIRD, Pinckneyville, Ill.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Convention Notices

WORCESTER COUNTY BEEKEEPERS' ASSOCIATION.

Meetings held on the second Saturday of each month, except July and August, at 2 P. M., at Horticultural Hall, Worcester, Mass.

April 12, Building Up for Work, Arthur C. Miller, State Inspector, Providence, R. I.

May 10, Swarming and Requeening, Allan Latham, Norwich, Ct.

June 14, Address, Wilfrid Wheeler, Concord, Mass., Secretary State Board of Agriculture.

Summer Field Meeting. Date, location, and program to be announced.

September 13, Address, Burton N. Gates, Ph. D., State Inspector, Amherst, Mass.

October 11, Rights of Beekeepers, Arthur Monroe, Spencer, Mass.

November 8, Comb and Extracted Honey, A. Flansberg, Marlboro, Mass.

December 13, Value of Inspection, J. L. Byard, Inspector, Marlboro, Mass.

January 10, 1914, Annual meeting. Election of officers. Reports of officers. General discussion of year's work.

Honey reports continued from page 2.

SCHENECTADY.—There is a limited demand for both comb and extracted honey; but there is very little to offer, especially of comb; and a fancy article would bring 15 to 16 cts. in a small way. Light extracted brings 8 to 9; amber, 7½ to 8. No dark to offer.

Schenectady, March 18. CHAS. MACCULLOCH.

INDIANAPOLIS.—Fancy white comb is selling at 18 cents per pound; No. 1 white, one cent less. Amber is in slow demand, and at lower prices. Supply of fancy white seems to be limited, and none is offered by producers. Best extracted sells at 11 to 12 in five-gallon cans. Beeswax is in good demand, and producers are being paid 30 cents per pound. Indianapolis, March 17. WALTER S. POWDER.

CINCINNATI.—The demand for comb and extracted honey is light, with a good supply. No. 1 white comb honey sells in large lots at \$3.60 per case of 24 sections. There is no demand for off grades. White extracted honey in 60-pounds cans is selling from 9½ to 10; light amber in barrels, 7 to 7½; in 60-pound cans, 8 to 8½. Beeswax is in fair demand; sells at \$33.00 per hundred. The above is our selling prices, not what we are paying.

Cincinnati, March 18. C. H. W. WEBER & Co.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

SECOND-HAND FIVE-GALLON CANS.

We have accumulated about a carload of good second-hand cans from which honey has been emptied and not washed, guaranteed to be without rust inside, and in good condition to use for amber honey for baking purposes. Price \$3.50 for ten cases of two cans each; \$7.50 for 25 cases; 100 cases or more at 25 cts. per case.

BUCKWHEAT SEED.

We have a good stock of buckwheat for seed, both Japanese and silverhull, which we offer while it lasts at 40 cts. a peck; 75 cts. per half-bushel; \$1.25 per bushel; \$2.25 for two bushels, bags included. Toward seedling time, a few weeks later, this price will doubtless be advanced. If you plan to sow this year you had better lay in a supply of seed when it may be had.

BEESEWAX WANTED.

Our large stock of beeswax is greatly reduced by recent orders for comb foundation, and we are in need of a further supply. Until further notice we will pay 30 cts. cash or \$2 in trade, delivered here, for good average wax. This is the best price we have offered in print for several years, and may not last long. If you have any wax to sell, get it off to us without delay, and be sure to mark the shipment so we can identify it when it arrives. Write, giving gross, tare, and net weight shipped.

MAPLE SUGAR AND SYRUP.

The weather this spring has been again unfavorable, and this makes the third poor syrup year. Some producers estimate the crop will be about 30 to 65 per cent of an average year. To-day, March 24, the season is about over, and we hope to ship orders from date at the following prices:

Single 1-gallon cans, or a case of 6 cans, \$1.25 per gal.
Two to ten cases of six one-gallon cans, 1.20 ..
Larger quantities, 1.15 ..
One to 100 lbs. maple sugar, .16 per lb.
100 lbs. and upward, .15 ..

BEEHIVES OF CALIFORNIA REDWOOD.

We have made up part of a carload of California redwood into hives, both eight-frame and ten-frame, with supers and covers of the same wood. We shall be pleased to furnish them to any who would like to try them in comparison with pine. In Arizona and parts of California they prefer hives made of redwood, claiming they will not shrink or change their shape as much as pine. Manufacturers of incubators are using redwood almost entirely, finding it most suitable for the purpose. An incubator is a very trying place for lumber of any kind; and if it works well there it ought to be excellent for hives. So far they are in stock at Medina only. If samples find favor we may use more of this kind of lumber in hives. It is as light in weight as pine, but red in color.

SWEET-CLOVER SEED.

As we go to press we are oversold on white-sweet-clover seed. Our stock, both hulled and unhulled, is entirely exhausted. We have upward of a ton of hulled seed engaged in California; but it may not arrive here for several weeks. We may also find some other lots. Until we do we can not name a price, and will accept orders subject to supply available and the best price we are able to make. Seed-houses are asking much higher prices than we have been selling at. We will try to supply some at no higher price than we are quoting on the yellow biennial. We still have a good supply of this, as well as of the annual yellow.

This blooms one to three weeks earlier than the white, and by many is considered fully as good, if not better. It is not as well known or as widely distributed as the white.

	1 lb.	10 lbs.	25 lbs.	100 lbs.
Hulled yellow biennial, .28	\$2.60	\$6.25	\$24.00	
Unhulled, .21	1.90	4.50	17.00	
Hulled yellow annual, .14	1.20	2.75	10.00	

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Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

ESTABLISHED 1891

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan and Cherry Sts.**San Antonio, Texas**

Factory and Warehouse.

To Our Friends and Patrons

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as those engaged in the business.

Owing to the constantly increasing demand for comb foundation and beekeepers' supplies, we have again been compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past year, our sales having aggregated approximately \$100,000.00.

Although it has been found a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the 5 $\frac{3}{8}$ -inch frames, same as described in our catalog, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the 10-frame hives.

Shortly before the death of Mr. Mayfield Mr. Udo Toepperwein sold his interest to Messrs. R. W. Hearne and B. L. Raborn, well-known business men of San Antonio. The retirement of the older members of the company will in no way change the policies of the new management except to increase materially the capital with the view of carrying a large stock of supplies. Mr. Morris, who has been practically the manager of the Toepperwein & Mayfield Co., continues with the new management.

It is the intention of the new management to increase materially the capital of the company, with the view of carrying a stock of supplies that will meet all the requirements of the trade. This will enable us to effect prompt shipments at all times, and thus avoid any delay and annoyance to customers on account of shortage of stock.

It will be our endeavor to accord our customers all possible courtesies and consideration in any matters that may arise. Mistakes will occur at times, as is only natural, and we only ask that they be brought to our attention so that they may be rectified. Our customers may be assured of the best quality of goods at as reasonable prices as are consistent with business methods.

Our new catalog on request. Address

TOEPPERWEIN & MAYFIELD CO., - San Antonio, Texas

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**These Features, together with a Special Magazine Department
Make up the Leading Farm, Home, and News Paper of the West**

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		The Price of Gleanings in Bee Culture is 1.00 a Yr.
		The Two Papers each one year will cost only . . 1.25 a Yr.

N. B.—This special arrangement with The Weekly Inter Ocean and Farmer is for a limited time only. Subscribers to the Weekly Inter Ocean and Farmer are assured that no papers will be sent after their subscriptions expire unless their subscriptions are renewed by cash payments.

ROOT'S BEEKEEPERS' SUPPLIES . . .

You may have a catalog of supplies; but if you haven't ours you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Extensive and prosperous beekeepers are writing us frequently letters like the following:

The A. I. Root Co.:—We have bought bees almost every season for a great many years, and in this way handled several styles of frames; but to date we have not found any thing that compares with your metal-spaced frame for an all-round fixture.

For the benefit of students we have experimented with other styles of metal spacers, and in every case imperfections were soon discovered. Your metal-spaced frame has many good points to recommend it, and we began using this style of frame the first season it was put on the market, and have more than 20,000 of them in use now.

For strength and rapid manipulation, this frame has no equal. We use it alike in brood-chamber and extracting-supers, as with our plan of management a frame may be in the brood-chamber at one time and in the super at another, or the reverse may be true.

Janesville, Minn., March 8, 1913.

THE HOFMANN APIARIES, per E. L. Hofmann.

Our catalog also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

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Cleanings in Bee Culture



VOL. XLI. APRIL 15, 1913, NO. 8.

Gleanings in Bee Culture

One Year

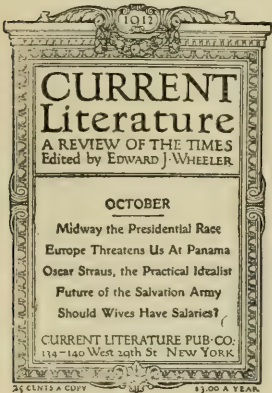
METROPOLITAN MAGAZINE (Three Months).—In 1913 the Metropolitan will contain W. W. Jacobs' funny stories; Arnold Bennett's Magazine articles; a series of stories, each complete in itself. Every issue has a color supplement, reproduced on heavy stock and ready for framing.



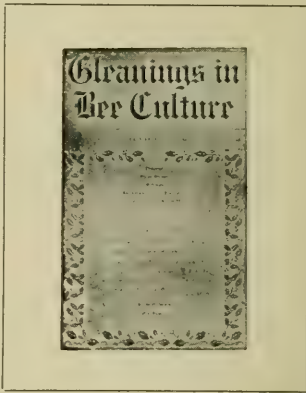
PICTORIAL REVIEW (Three Months).—The fashion pages of this magazine have won for it a circulation of over eight hundred thousand copies monthly. Its styles and patterns are famous the world over. Its special articles, stories, and household departments are timely, and furnish instructive reading for every woman.



HOUSE BEAUTIFUL (Three Months).—An illustrated magazine of practical interest filled with suggestions concerning home making, building, interior decorations, furnishing, and gardening.



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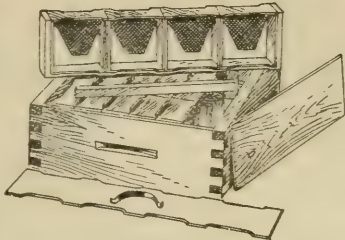
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"falcon" Hives, Supers, Sections Frames, Foundation, etc. Everything for the Beekeeper.

How's your supply of supers? Don't let swarming season catch you without a supply. If you haven't enough for the coming season it would be a good plan to place your order now. It isn't very pleasant to get caught in the rush without supers; and every day that you lose means dollars in honey lost.

Eight-frame in the Flat in lots of

	1	5	10
No. 1 super,	75c	\$3.50	\$6.80
No. 2 super,	55c	2.50	4.80



The "Falcon" No. 1 super holds slotted section-holders, wood separators slotted both edges, follower, springs, 4¼x4¼x1½ beeway sections, inch-wide foundation starters, and nails. The No. 2 is the same as No. 1 without sections and foundation starters.

Ten-frame in the Flat in Lots of

	1	5	10
No. 1 super,	80c	\$3.75	\$7.30
No. 2 super,	60c	2.75	5.30

The price of supers holding 4x5x1½, 4¼x1½, 3½x5x1½ plain sections is the same as the 4¼x1½ style. When ordering, specify style of sections.

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All Goods Guaranteed. . . . A Trial will Convince You.**

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Where the good beehives come from

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It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard
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hence there is nothing to fear as to quality.
Send us your rush orders and get your goods before swarming time arrives.
Beeswax taken in exchange for supplies or cash.

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HIGH HILL, MO.**

DO YOU LOVE SWEETS?

RALPH WALDO EMERSON DID

He said you can attain to royalty by loving sweets.

"He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

"HOW to come at these?"

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*.

Want to know how?

Send \$1.00 for a year's subscription to

**The Guide to Nature
Arcadia, Sound Beach, Conn.**

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from tractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well combed by all other means except the centrifugal strained. It may be put up in cans that previously have contained honey.

NEW YORK.—We have nothing new to report. There is very little comb honey around, and we do not expect any shipments from now on of any consequence. Prices rule as formerly. We may say the same as to extracted. Our market is quiet on all grades. There is no change in prices. Beeswax is steady at 31.

New York, April 5. HILDETH & SEGELKEN.

SCHENECTADY.—We have to report a very quiet market; but little stock on hand; bad roads and high water interfering with what might be sent forward. One producer writes us that he was obliged to pay five dollars to have nine cases of extracted honey drawn to a railroad station, a distance of only six miles, on account of the almost impassable condition of highways. No change in prices.

Schenectady, April 5. CHAS. MACCULLOCK.

ST. LOUIS.—Since our last, of March 19, the honey market is precisely the same, and we repeat the quotations as follows: Fancy white comb honey, 16 to 17; No. 2 white, 15; light amber, 13 to 14. By the case, fancy white sells at \$3.65 to \$3.75; No. 2, \$3.40 to \$3.50; amber, \$2.75 to \$3.25, according to quality. Dark or broken honey is almost unsalable, no matter what concessions are made. Extracted Southern in barrels and half-barrels is quotable at 6½ to 7 for light amber; in five-gallon cans, 7 to 7½; California, Utah, and Colorado honey, white, 9 to 9½; light amber, 8½, all in five-gallon cans. Beeswax is in good demand at 31 for prime. Inferior and impure sells for less.

St. Louis, April 5. R. HARTMANN PRODUCE CO.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

Now, Then, for Your Early Bee-supply Orders!

Send us a list of the Bee Supplies you want.

Our prices will astonish you.

Also send us your old combs.

We will render your wax and save you money.

Write for particulars.

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"The Busy Bee Man"

204 Walnut Street

Cincinnati, Ohio

An Active Season Just Ahead

A carload of perfectly new goods is just on hand from the factory, and another car will be on the way to us in a few days. This brings up our assortment so that we can now furnish almost any thing listed in the catalog at once.

Hives should be ordered at once if they are to be ready for spring. Frames, and other inside fixtures too, should be put together now.

If you are wanting any special goods, orders should be made at once. Other cars will be coming from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

The mailing of our new catalog is completed. If you are not on our mailing list send us a postal-card request for this catalog.

If you want to buy in quantities considerable larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line, and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder—the best in the market. Write for our catalog.

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Cincinnati, Ohio

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of the A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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PARIS, FRANCE. E. Bondonneau, 120 Avenue Emile Zola.
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INDIANAPOLIS.—Fancy white comb is selling at 18 cents per pound; No. 1 white, one cent less. Amber is in slow demand, and at lower prices. Supply of fancy white seems to be limited, and none is offered by producers. Best extracted sells at 11 to 12 in five-gallon cans. Beeswax is in good demand, and producers are being paid 30 cents per pound. Indianapolis, April 9. WALTER S. POWDER.

DENVER.—We quote comb honey in a jobbing way at the following figures: No. 1, \$3.05; choice, \$2.90; No. 2, \$2.70, per case of 24 sections. Extracted honey, white, 9; light amber, 8; strained, 6½ to 7. We pay 28 cts. in cash, and 30 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, April 8. FRANK RAUCHFUSS, Mgr.

ZANESVILLE.—Flood conditions in Ohio and bordering States have paralyzed business in general, the honey business included; consequently quotations are of little meaning or value. Producers still have a little of the old crop to offer. While comb is pretty well cleaned up, there seems to be an oversupply of extracted. Nominally, best grades of white comb should bring 18 to 19; white extracted, 10 to 11. For beeswax, producers are offered 30 cts. in cash, 32 in trade.

Zanesville, April 4. EDMUND W. PEIRCE.

BUFFALO.—Demand for both extracted and comb honey is very slow in this market; very little in the hands of jobbers. I think the price is too high to make a free movement. I think the price is too high all be sold before the new crop is ready for market. We quote fancy white comb honey, 17 to 18; choice ditto, 16 to 17; No. 1 ditto, 15 to 16; No. 2 ditto, 13 to 14; dark ditto, 12 to 15; No. 1 white extracted, 9 to 10; amber ditto, 6 to 7; dark ditto, 8 to 9; beeswax, 27 to 28.

Buffalo, April 5. W. C. TOWNSEND.

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The entire safety which this bank affords for money entrusted to its care has gained for it many patrons who do not live in Medina, and who open accounts BY MAIL.

From the time a deposit is mailed until it reaches us it is protected by the United States Postal Authorities; and, after it reaches us, by our Capital and Surplus and the supervision of the State of Ohio.

Send us your address and we will forward further information.

The SAVINGS DEPOSIT BANK COMPANY

Medina, Ohio

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NEW American Bee Journal

IT PLEASES

FRIEND DADANT:—Say, do you folks know that the Old Reliable is just more than forging to the front?

Yours truly,

Lansing, Mich., Feb. 9. A. D. D. Wood.

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C. P. DADANT

DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

Gleanings in Bee Culture

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Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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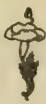
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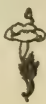
Folks Like Michigan Comb Honey

However it is so scarce that they can not get any. It is a case of under-production. It will pay YOU TO MAKE THIS YEAR A COMB-HONEY YEAR. Pages 12 and 13 of our catalog show comb-honey outfits. They're Root's goods too. . . . Beeswax wanted.

M. H. HUNT & SON, LANSING, MICHIGAN
OPPOSITE LAKE SHORE DEPOT



We are booking orders for Italian bees by the pound, with or without queens. . . . Write for prices on quantity wanted.



FRUIT-GROWERS!

Send 10 names of fruit-growers and 10 cents, and get "The Southern Fruit Grower" four months. Tells all about fruit-growing, gardening, poultry-raising, etc., in the South. Contains from 32 to 40 pages each month. Address

THE SOUTHERN FRUIT GROWER
Dept. SC, Chattanooga, Tenn.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

BEES AND SUPPLIES

You will soon need a bill of supplies. Let us quote you before placing your order. We please thousands, why not you? Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Aplarian, Glen Cove, L. I.

Swarthmore Apiaries
Swarthmore, Pa.

PURE QUEENS
Golden Strain
Pedigreed

No new blood introduced for over EIGHT YEARS



THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributer. G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight" **TOLEDO** "Griggs Saves Your Freight"

We have made arrangements with a large Southern breeder to furnish us with BEES and QUEENS, and orders will receive our prompt attention commencing April 1. First come, first served. Be first.

ORDER BEE-SUPPLIES NOW.—Large car of new goods on the way to fill the rush of early orders coming in. Send your orders now.

POULTRY FEEDS AT WHOLESALE.—Write for special prices of feed to be shipped with your order of bee-supplies. Cut out the middle man.

BEE-SWAX.—We can use five tons of good first-class wax. Send yours in now. Cash or in trade. Free catalog. Ask for one.

S. J. GRIGGS & CO. . . 26 North Erle Street . . TOLEDO, OHIO

"If Goods are wanted Quick, send to Pouder."



Bee Supplies Up to Date

EQUIPMENT.—Storeroom built expressly for the business; large concrete basement with just enough moisture to prevent breakage in sections and shrinkage in dovetailed corners of supers and hives. Electric lift brings up two tons of goods to first floor in thirty seconds for shipment. Does this appeal to you?

QUALITY.—Root goods at the factory schedule of prices, whether you require one hive or a hundred. This is the quality that I have handled for nearly a quarter of a century, and the kind that you can recommend to your visiting neighbors. I MIGHT have increased my profits for a SHORT TIME by handling other goods, but I would not have remained so long in the business.

GUARANTEE.—Many articles described in my catalog can now reach you by parcel post, and I assume all responsibility in safe arrival of goods. I have the very finest tight-seal glassware for putting up extracted honey, and I guarantee safe arrival—no breakage at purchaser's loss. I have waxed-paper honey-jars that are a decided success wherever they have been used.

MY CATALOG.—My catalog describes all of these things, and contains valuable information for those who are interested. I shall be pleased to show you how promptly I can get one into your hands if you will drop me a card.

BEE SWAX.—Remember me when you have wax to offer, cash or trade, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue

Flooded Stock!

Owing to the recent floods in Zanesville my stock of bee supplies has been somewhat damaged by water, and I am obliged to move the same at once. As the water stood on the stock but a comparatively short time, the condition of the material is not at all bad; but I am prepared, nevertheless, to offer some very decided bargains in order to move it all this month, and make room for new stock already ordered from the factory. I will have ready for mailing within a few days a list of damaged stock with its condition fully described, and the discounts I can make on the same. Write for this list at once if you want to buy some otherwise good stock at reduced prices. You will save money by so doing, and help me at a time when I need your help.

As I had a carload of goods ordered before the flood, and as the factory is helping me out with direct shipments, all orders are being cared for promptly, and being filled with standard undamaged stock without delay.

Damaged Stock at Reduced Prices
Regular Stock at Catalog Prices

E. W. Peirce, Zanesville, O.
136 W. Main St.

A KIND WORD FOR THE HOME PAPERS.
Mr. A. I. Root.—The richest thing in GLEANINGS for Nov. 15 was the wail of C. P. Kimball, on page 9. He wants you to stick to bees, more bees, all bees, nothing but bees. I infer he doesn't like something in the Home Department. Oh dear! Why couldn't he read GLEANINGS as far as Our Homes, and then stop? My opinion is, he couldn't stop then. He just had to read Our Homes, either because he liked it or because he didn't like it. But there was no need of his coming back at you for trying to make this world better. Now, Mr. Root, I will give you fair warning that, if you ever drop Our Homes, I will drop GLEANINGS. I seldom read the bee part of your paper, but always read every thing else. I am not a church member, and don't go to church; but I think if your advice were followed, and the reforms you advocate were adopted, this would be quite a heavenly world.

Cleveland's "Golden-rule" police department is a good one too. The idea of dumping their undesirable citizens into their neighboring cities and towns! Their conception of the "golden rule" must be badly "frazzled."

Boca Raton, Fla., Nov. 26. F. H. CHESEBRO.

PHLEPS' FACTORIES NOT TOUCHED BY BIG FLOOD.
One of the biggest and oldest industries in the State of Ohio, The Ohio Carriage Mfg. Co., makers of the famous Split Hickory vehicles, escaped all damage from the flood. The general havoc created in some parts of Columbus has rapidly given way to the regular order. The Ohio Carriage Factories and others happily located were entirely out of reach, and far removed from the troubled side of the city. Their business is progressing without interruption, and the railroads are taking prompt care of all shipments.

PATENTS

25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLachlen Building, Corner
Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts

Patent Counsel of
The A. I. Root Co

Boston New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. . . . Send for catalog

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.



LINE-BRED

CARNIOLAN QUEENS

Selected and bred according to the most powerful method known to intensify and perpetuate the good qualities of the breeding queen. . . . Orders booked now for June delivery. Untested, \$1.00 each; \$9.00 per doz. Tested, \$1.50 each. Breeders (1912 rearing), \$10.00. Ask for our paper, "Superiority of the Carniolan Bee." It's free.

ALBERT G. HANN, PITTSBOWN, NEW JERSEY
Carniolan Queen Breeder

Pure Golden Italian Queens

Better than Last Year

Mated, \$1.00; select mated, \$1.50; select tested, \$3.00; breeders as high as \$50.00. Send for booklet, and get the best . . . My breeders produced over 200 pounds of surplus each last year. Try them and see what they will do for you.

GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR

"FALCONER"

Write for discounts—we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

Beekeepers!

If You Have Dwindling Colonies

send a postal for price list on young Italian bees by the pound, with or without queen. No DISEASE. IT WILL PAY YOU TO INQUIRE AT ONCE. Satisfaction guaranteed. Reference by special permission, First National Bank of Pomona, Calif. Address 475 W. Center St. **J. M. STRIPSKEY, Pomona, Cal.**

Bees, Queens, Orange Honey

LEWIS HIVES ARE BUILT LIKE FURNITURE
ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

PUBLICATIONS ON BEE CULTURE

(Please use coupon below, checking the numbers of items wanted.)

The pamphlets and booklets listed below are of more than ordinary interest.

- 1 MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 THE BEEKEEPER AND FRUIT-GROWER. A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honeybees in close proximity to their blossoming fruit. Free.
- 4 CATALOG OF BEEKEEPERS' SUPPLIES. Our complete catalog will be mailed free to any address on request.
- 7 SPRING MANAGEMENT OF BEES. A 14-page booklet detailing the experiences of some successful beekeepers, and giving instructions on this oftentimes perplexing matter. Price 10 cts.
- 8 HABITS OF THE HONEYBEE. By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- 9 HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 THE A B C OF BEE CULTURE. A complete encyclopedia of bees, of 576 pages, fully illustrated, \$2.00 postpaid; half leather, \$2.75.
- 11 GLEANINGS IN BEE CULTURE. A 64-page illustrated semi-monthly magazine—the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.
- 12 BACK-YARD BEEKEEPING. Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 13 THE BUCKEYE BEEHIVE, or the management of bees in double-walled hives. Of special interest to the amateur beekeeper. The most complete booklet we publish for free distribution. Illustrated throughout; 84 pages.
- 14 ADVANCED BEE CULTURE. A beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that its many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth; \$1.00 per copy, postpaid.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

CUT COUPON HERE

The A. I. Root Co., Medina, Ohio.
Please send me the items checked. I enclose

\$..... to cover the cost.

1	2	4	7	8	9	10	11	12	13	14
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Name

Street Address or R. F. D.

Town

B. C. State

BEEKEEPERS

Your busy season is close at hand. Get wise, and place your orders with the supply dealer who will save you money and serve you best with Root's quality sections, frames, foundation, smokers, extractors, etc. I can serve you now without delay. My 1913 catalog tells you all about these things; besides, it contains a lot of information to those interested in bees. Special attention given to the breeding of three-banded Italian bees and queens. Catalog free.

EARL M. NICHOLS

Lyonsville, Massachusetts

ATTENTION!

Very important to all beekeepers all over the world who desire to improve their native or mixed strains of bees!

THE DIRECT EXPORTATION FROM CARNIOLA OF THE GRAY-BANDED ALPINE BEE, which until now was conducted by the Imperial Royal Agricultural Ass'n of Carniola, the undersigned will, IN THE FUTURE, MANAGE ON HIS OWN ACCOUNT. JOHANN STRGAR, Witsch.

P. O. Wochsiner Feistriz, Upper Carniola (Krain), Austria.

Owner of 58 Honors awarded to him at various apicultural exhibitions for his achievements as a breeder of the best strain of Carniolans and producer of apicultural products. ALL QUEENS TAKEN FROM FULL COLONIES, AND NOT OVER ONE YEAR OLD. Mailed postage free. Dead select tested queens will be replaced if returned in 24 hours after arrival, except when they arrive in such a state in South America or Australia. Dead select untested queens can not be replaced. Send remittance per Intern. Money Order with order. Safe arrival of nuclei and hives not guaranteed. Orders of this kind must be accompanied by freight expenses. The safest transport of stock is in Carniolan box hives. After arrival or later the combs can be cut out to fit any frame. Prices of select tested queens: March, April, May, \$5.00; June, July, Aug., Sept., Oct., \$3.50. Select untested queens: June, July, Aug., \$2.00. Carniolan box hives with 4 to 5 lbs. of bees, select tested queen, brood combs, honey, \$1.00, on board R. R. station Wochsiner Feistriz. Write English for complete Price List and new Booklet (which will be mailed postage free) under above address.

CO-OPERATION means buying right and selling right. We are a co-operative association, and sell the best bee-supplies obtainable at the right prices. It will pay Western beekeepers to send for our illustrated catalog.

The Colorado Honey Producers' Assn., Denver, Colo.

How to Keep Bees

BY ANNA BOTSFORD COMSTOCK

This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in getting this book. It is charmingly written and easily understood. Price \$1.10 postpaid.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Honey reports continued from page 2.

CHICAGO.—There is no change of any importance in the market since our last report. Of course the volume of business is gradually growing less; but the comb honey seems to be exhausted, or nearly so. Chicago, April 7. R. A. BURNETT & CO.

LIVERPOOL.—Chilean honey, retail sales at late rates. Business is limited by small supplies—\$6.12, c. i. f., being asked for average pile 3; April-May shipment, buyer's ideas, \$5.88. A moderate trade has been done in New Zealand honey at \$10.80, and in Jamaican at \$6.72 to \$7.20, and stocks are now cleared. Small sales of the best Californian have been made at \$11.04; \$9.96 to \$11.04 is quoted. For Chilean beeswax the market is firm. Spot stocks have been cleared at \$39.48 to \$40.38 per cwt. Four tons have been sold at \$41.88 per March-April shipment.

Liverpool, April 2.

TAYLOR & CO.

Better Queens

I have had 17 years' experience rearing queens, and am, this year, rearing all the queens for the Shely-Murry Bee Co. from the best stock obtainable. In addition to supplying our own yards with all the young queens wanted, I shall offer for sale a few at the following prices—three-banded Italians:

Untested: 90c; 6 for \$5.00; 12 for \$9.00; 100 for \$65.00.

Tested: \$1.00; 6 for \$5.50; 12 for \$10.00; 100 for \$75.00.

Select Tested: \$1.50; 6 for \$8.00; 12 for \$15.00.

A few fine breeders at \$5.00 each. Prices of nuclei upon application.

H. D. Murry

Manager Shely-Murry Bee Co.

Mathis, Texas

BREEDING QUEENS . .

Can be sent out any time after May 1. We have a choice lot of Italian queens at \$2.50, \$5.00, and \$10. No untested queens before July. Send for circular.

Doolittle & Clark, Marietta, N. Y.
Onondaga County

Our HAND-MOORE STRAIN 3-BAND ITALIANS

Are the best honey-gatherers. They spoil our white-clover honey by mixing it with red-clover. Record tongue reach 23-100 of an inch. Breed strictly for business. Untested, 75c; 12 for \$8.00; 50 for \$25.00.

LATSHAW HONEY COMPANY
CARLISLE, INDIANA

PHARR'S QUEENS. . . .

We desire to thank our former patrons, and ask that, when you are in need of Golden or three-banded Italians, you send your order to us and receive fair treatment. Tested, \$1.50; untested, \$1.00. For prices on large quantities write us. . . . Breeders, \$3.00 to \$5.00.

New Century Queen Rearing Co.
Berclair, Texas

Comb Honey Producers! Send for illustrated circular of new Rauchfuss Combined Section Press and Foundation Fastener. Sold with guarantee to give satisfaction, and delivered anywhere in U. S., on remittance of \$3.00.

The Colorado Honey Producers' Assn., Denver, Colo.

"QUEENS"

.. FROM ..

**The Penn Company,
of Penn, Lowndes
County, Mississippi**

"GOLDEN" and "THREE- BANDED" ITALIAN QUEENS

**Unsurpassed for Gentleness and
Working Qualities, and World
Beaters as Honey Gatherers.**

Queen Circular on request
by Return Mail

The Penn Co., Penn, Miss.

W. H. LAWS

is again ready to fill your orders for queens the present season. Law's Red-clover Italians are as good as can be had.

One firm who bought over 1100 queens from me in 1912 says, "Your queens are very satisfactory." We are booking orders now, and we are going to do our level best to maj! all queens by return mail when so ordered. My bees are absolutely clean and free from all disease.

Queens sent out under the usual guarantees. Prices: Single queen, \$1; six for \$5. Breeding queens, none better, each, \$5.

W. H. LAWS, BEEVILLE, BEE COUNTY, TEXAS

Taylor's Three-banded Italian Queens

are now Ready to go by Return Mail

We have hundreds of fine testimonials about our queens. Untested, \$1.00 each or \$9.00 a doz. Tested, \$1.25 each or \$14.00 a doz. Select tested, \$1.50 each or \$16.00 a doz. Breeders, the very best, from \$3.00 to \$5.00 each. No better queens raised. Send all orders to

J. W. Taylor & Son, Beeville, Texas

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, \$1.00; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c.

E. E. MOTT, Glenwood, Mich.

SPRING IS HERE

and soon the bees will be flying, breeding, and increasing in strength. . . Swarming will then take place. . . Are you prepared for the increase? . . Be forehanded, and have your hives all ready. . . We carry a large line of hives and other goods. Our catalog for 1913 is now ready for mailing. A copy will be sent you on request.



THE A. I. ROOT CO., SYRACUSE, N. Y.

. . . ROOT'S . . .

POWER HONEY - EXTRACTORS

Our new catalog is full of information about these labor-saving machines. With the difficulty of getting competent help, the power extractors are being sold largely in this and foreign countries, and the present demand is far greater than ever before. Read what a California producer says in a letter to a disinterested party, which we are permitted to see and publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root Automatic extractor, as I believe it is as near perfection as can be. This machine runs so easy that a few turns to get it up to speed is all that is necessary; and the men, while using the No. 17, which I formerly had, could average only 1000 lbs. per day, while with this machine they can average 2000 lbs. with but one additional man. No apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, and financially to the honey-producers' interests.

Elk Grove, Cal.

B. B. HOGABOOM.

For full particulars see our new catalog

THE A. I. ROOT COMPANY, MEDINA, OHIO

New York, 139-141 Franklin St. Chicago, 213-231 Institute Place Philadelphia, 8-10 Vine St.
Des Moines, 565 W. 7th St. St. Paul, 1024 Mississippi St. Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W. Mechanic Falls, Maine
Distributing Depots in many large centers

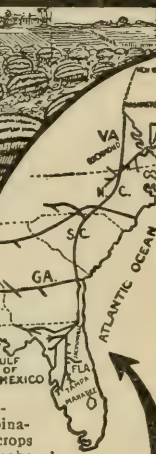
COME SOUTH

**S·A·L
R·Y.**

RICH LANDS-REASONABLE PRICES



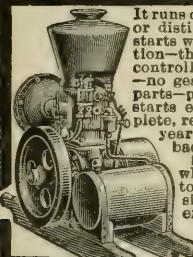




Virginia's truck lands assure attractive returns from intelligent cultivation. North and South Carolina afford splendid opportunities to raise under attractive conditions Potatoes, Melons, Tobacco, Sugar Cane, Dewberries, Strawberries. Georgia, the empire state of the south, attracts the homeseeker who wants to locate on rich, arable land, producing good money crops within easy reach of markets. Florida, land of opportunity, home of the successful cultivation of the Orange, Grape Fruit, Celery and a long list of Vegetables, which combination of soil and climatic conditions, puts in the first markets at best prices. Several crops annually; crop-growing season 348 days. The Six Southern States traversed by the Seaboard Air Line Railway offer special inducements. Ideal climate, water plentiful, quick transportation to big markets. Illustrated booklets free.

J. A. PRIDE, Gen. Ind. Agt., SEABOARD AIR LINE RAILWAY, Suite 376, NORFOLK, VA. 7

20 Reasons Why You Should Investigate the SANDOW Kerosene Stationary ENGINE



It runs on kerosene (coal oil), gasoline, alcohol or distillate without change of equipment—starts without cranking—runs in either direction—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—starts easily at 40 degrees below zero—complete, ready to run—children operate them—5 year ironclad guarantee—15-day money-back trial. Sizes 2 to 20 horsepower.

Send a postal today for free catalog, which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your county. (164)

**Detroit Motor Car Supply Co.,
72 Canton Ave., Detroit, Mich.**

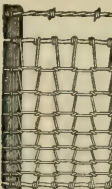
FACTORY PRICES YOURS

60 DAY FREE TRIAL



The famous WITTE Gasoline Engine, built for 43 years by Ed. Witte, master engine builder, now sold direct to you. The standard engine of America, with every improvement up-to-date—detached cylinders, vertical valves, etc.—the entire engine backed up by a Real 5-Year Guarantee. Just think! It takes only 2c to get the money-saving, factory prices on 54 styles and sizes. Save money! Write at once for FREE TRIAL OFFER and catalog. State style and size wanted. Address

**WITTE IRON WORKS CO.
1937 Oakland Avenue, Kansas City, Mo.**



FARM FENCE

41 INCHES HIGH
100 other styles of Farm, Poultry and Lawn Fencing direct from factory at save-the-dealer's-profit-prices. Our large catalog is free.

**21
CENTS
A ROD**

KITSELMAN BROS. Box 21 Muncie, Ind

YOUR HENS YOUR FARM YOUR MONEY

Farmers and Fanciers should get the FREE POULTRY BOOK and Catalogue written by ROBERT ESSEX, well known throughout America. After 25 Years With Poultry. It tells How to Make Most From Eggs and Hens for Market or Show, contains Pictures of 30 Poultry Houses; tells cost to build; describes AMERICA'S LARGEST LINE of INCUBATORS AND BROODERS—\$2.25 to \$48 each. Write today.

Robert Essex Incubator Co., 81 Henry St., Buffalo, N. Y.



BROWN FENCE

BIG BARGAINS in Fence. 150 styles—13 cents per rod up. We pay freight. Send for bargain book and sample to test—ALL FREE

**THE BROWN FENCE & WIRE COMPANY
DEPT. 91 CLEVELAND, OHIO**

450,000 TREES

200 Varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Catalog free

LEWIS ROESCH & SON, Box A, Fredonia, N.Y.

. . THE . .

KENNARD HOUSE

Cor. West 6th and St. Clair Sts.

CLEVELAND, O.



In the Wholesale District
100 Outside Rooms
\$1.00 per Day and up
European Plan
50 Large Sample Rooms
Handy to Everywhere

Big Potato Crops

Banish blight and bugs by spraying the *new, thorough* way, saturating thoroughly. Over 300,000 farmers and gardeners use

Brown's Auto Sprays

Auto Spray No. 1 is most powerful and efficient of all hand sprayers. Capacity four gal. Guaranteed to do best work in shortest time at lowest cost. Auto pop nozzle throws round, fine, and coarse sprays and streams. Easiest to handle. 40 styles and sizes—hand and power outfits. *Brown's Non-clog Atomic Nozzle* for large sprayers—great time and money saver, positively will not clog—adjustable from fine spray to powerful stream. Write for complete Spraying Guide and full particulars.

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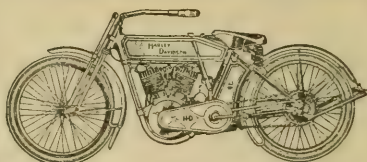
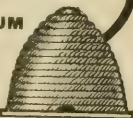
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ON July 3rd, 1908, the Harley-Davidson established a new world's record for economy, traveling 50 miles over give and take country roads on one quart and one ounce of gasoline.

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Save \$25 to \$40 on a BUGGY

Phelps' Free Book shows largest selection of high grade buggies in America. 140 styles all sold *direct* to user. 167,000 now in use. Full and complete line of Harness.

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The Ohio Carriage Mfg. Co.,
Sta. 293, Columbus, Ohio.

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SOMETHING NEW "KANT-KLOG" SPRAYERS

Gets twice the results with same labor and fluid. Flat or round, fine or coarse sprays from same nozzle. Ten styles. For trees, potatoes, gardens, whitewashing, etc. Agents Wanted. Booklet free.

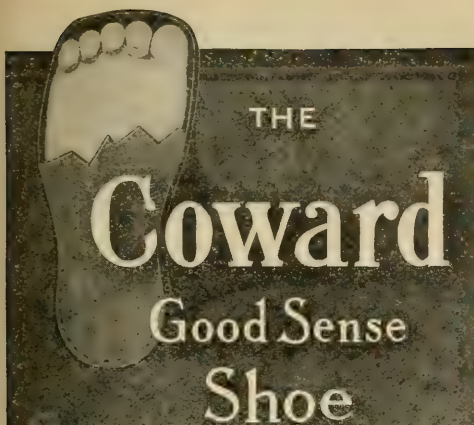
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Good Sense
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is made over a perfect-fitting last which follows the natural outlines of growing feet. Roomy at the toe, supports arch and ankle—safeguards against "flat-foot."

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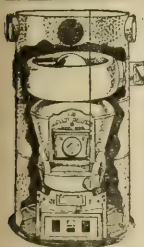
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BEESWAX WANTED!

Recent demand for comb foundation has been good, and our stock of beeswax is running low. We offer for good average quality and prompt shipment 30 cts. per lb. cash, or 32 in trade, delivered at Medina. Shipments from the Pacific coast should be in barrels or boxes. From other Western points, pack in double bags to get the most favorable rate. Be sure to mark the shipment so it can be identified when it arrives, and send us a shipping receipt with a statement of gross, tare, and net weight shipped. This is important as it gives us something to check so as to determine whether any has been lost in transit.

The A. I. Root Company
Medina, Ohio

BUY YOUR FURNACE \$10 DOWN \$10 A MONTH



Our monthly payment plan of selling direct saves you the dealer's profits and excessive charges for installation. The

JAHANT FURNACE

with the patented "Down Draft System" is best for residences, schools, hotels, churches, etc., because it delivers plenty of heat wherever and whenever desired at a saving of 1-3 to 1-2 in fuel bills. Install the Jahant yourself. We send complete outfit, freight prepaid, with special plans, detailed instructions, and all necessary tools for installation. SATISFACTION GUARANTEED OR MONEY REFUNDED. Write for free illustrated book.

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Save 1/3 to 1/2 on Fuel Bills

Hill's Evergreens Grow

Best for windbreaks. Protect crops and stock. Keep house and barn warmer—save fuel—save feed. Hill's evergreens are hardy, nursery-grown—low priced. Get Hill's free illustrated evergreen book and list of Great Bargain Offers—from \$4.50 up per Thousand. 56 years experience. World's largest growers. Write, D. HILL NURSERY CO., Inc. Evergreen Specialists. 246 Cedar St., Dundee, Ills.



THE "BEST" LIGHT



MAKES and burns its own gas. Produces 100 candle power light—brighter than electricity or acetylene—cheaper than kerosene. No dirt. No grease. No odor. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
306 E. 5th St., Canton, Ohio

Containers for Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. Special attention is directed to our assortment of Friction-top Pails and to tin cans of 1/2, 1, and 5 gallon capacity. Get full information, prices, and samples.

The A. I. Root Company, - - - - - Medina, Ohio.

GET TOP NOTCH PRICES **BY** USING LEWIS SECTIONS
FOR YOUR HONEY AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors

HONEY AND WAX FOR SALE

Spanish-needle honey, blended; quality the finest; 60-lb. tins, or liquefied in pails of any size.

F. B. CAVANAGH, Hebron, Ind.

Fancy clover honey in one-gallon cans. One, \$1.50; two, \$1.45 each.

GEO. SHIBER, Randolph, N. Y.

FOR SALE.—Finest quality clover and clover-bass-wood honey in 60-lb. cans. C. J. BALDRIDGE,

Homestead Farm, Kendaia, N. Y.

FOR SALE.—Two dozen 60-lb. cans of clover honey, 7½ cents per lb. Samples on application.

J. RIDLEY, Stevensville, Mont.

We have on hand a large shipment of extracted white-clover honey from a prominent producer. This honey has a very heavy body, and was well ripened before it was taken off the hives. We ship it, if preferred, in liquid form without extra charge, in new tin cans holding five gallons each, two cans in a case. Ask for free sample of lot 81, and our price. We have some fine fall amber extracted. An early fall flow caught a producer before he could get his white honey off, so his crop had to be graded as amber. Free sample and the price for asking. Lot No. 69. THE A. I. ROOT CO., Medina, Ohio.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb, extracted honey, and beeswax. Write us. HILDRETH & SEGELKEN, New York.

WANTS AND EXCHANGES

WANTED.—To buy 100 colonies of bees. DAVID RUNNING, Filion, Mich.

WANTED.—Carload of bees for May delivery, from this or nearby State. W. J. MANLEY, Sandusky, Mich.

WANTED.—50 colonies in box or frame hives. WILEY A. LATSHAW, Carlisle, Ind.

WANTED.—Raw furs, honest prices, honest grades. GEORGE E. KRAMER, Valencia, Pa.

WANTED.—Second-hand empty beehives. "Key," 3613, GLEANINGS IN BEE CULTURE, Medina, Ohio.

WANTED.—Bees by the pound in May, with young laying queen to each pound.

THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

WANTED.—Kodak, typewriter, 22-rifle. Watch and books in exchange for seeds, plants, and bulbs. JACOB MCQUEEN, Baltic, Ohio.

I will exchange a \$75 Emerson typewriter for 25 hives of bees or 35 lbs. of bees in 1-lb. packages with queen in each. Write me at once.

VEEN O. DERBY, Wileyville, W. Va.

FOR SALE

A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. THOS. LITZ, Osceola Mills, Pa.

Special low price on all grades of foundation to close out. A. G. ANDERSON, Holden, Mo.

FOR SALE.—100 lbs. medium brood foundation. THEO. WEILER, Rt. 3, Milwaukee, Wis.

FOR SALE.—25 single-walled hives, with supers. LEON HOWDEN, Fillmore, N. Y.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

FOR SALE.—12 Danzenbaker supers with sections and starters, all as good as new. LEON MORRIS, Rt. 20, Elizabethtown, Ind.

FOR SALE.—20 nine-frame L. hives complete in good condition. First check for \$15.00 takes them. S. C. JONES, Schenectady, N. Y.

FOR SALE.—Beekeepers' supplies; bees and honey. The only satisfactory hive for this climate. Write for circular. A. E. BURDICK, Sunnyside, Wash.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Texas.

For Sale or Trade.—Automobile and trailer, in A1 condition; want bees and hives. Have auto truck, so no longer need above outfit.

F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

Root's goods at Savannah. The logical center for your orders. The quality is unexcelled. Service accurate and prompt. Catalog gladly.

L. W. CROVATT, Box 134, Savannah, Ga.

Bee supplies for all southern Idaho and east Oregon beekeepers' wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest.

C. E. SHRIVER, Boise, Idaho.

FOR SALE.—400 new eight-frame supers in flat, with fence separators and section-holders, fitted for plain sections, 4¼ x 4¼ x 1½, with tins, super springs, all complete, each, 35 cts.; in lots of 25, 30 cts. each. F. A. GRAY, Redwood Falls, Minn.

Best No. 1 sections, 1000, \$4.40; 2000, \$3.60; 3000, 12.60; 5000, \$20.00. No. 2, 50 cts. less; plain, 25 cts. less. White-pine hive, 1½-story, eight-frame, \$1.45; 10-frame, \$1.60; 100 Hoffman frames, \$2.60; 100 extracting frames, \$1.75. Catalog free. Bees for sale. H. S. DUBY, St. Anne, Ill.

FOR SALE.—One Huther Bro.'s 8-inch groover or dado head; cuts ¼ to 1 in. by 1-16; used but little, with one-inch hole, \$10; cost \$12.30. One 12-inch rip-saw, 75 cts.; one 10-inch cutoff saw, 75 cts.; one 8-inch cutoff saw, 50 cts.; one saw-mandrel for same, with 2½-inch pulley, \$2.00, or the lot for \$14. M. C. SILSBEE, Haskinville, N. Y.

FOR SALE.—100 ten-frame hives, 90 cts. each; 11 ten-frame Woodman Protection hives, \$1.25 each; 50 ten-frame extracting supers, 7½ inches deep, 35 cts. each. The above are all empty, no frames; are all Root make except Protection hives; are in good shape, and worth the money.

W. H. TOWNSEND, Hubbardston, Mich.

BEES AND QUEENS

Golden Italian queens. Untested, \$1.25 each.
J. B. CASE, Port Orange, Florida.

FOR SALE.—100 colonies of bees, fine location.
CHAS. PARKER, Morris, Tioga Co., Pa.

FOR SALE.—50 to 300 colonies, eight-frame, good condition.
E. F. ATWATER, Meridian, Idaho.

FOR SALE.—Colonies of Italian bees, good condition, \$5.00 per colony.
H. M. REIMELS,
Springfield Gardens, L. I., N. Y.

FOR SALE.—Fine Italian queens, three-banded, prolific, hardy, gentle. Ready May 15. Untested, \$1.00 each. J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

Dead beekeepers' heirs fearing bees can sell to FRANK ALLEN, Phillipsburg, Quebec, who comes, packs, and ships them.

FOR SALE.—½ lb. bees, \$1.00; 1 lb. bees, \$1.50; add price of queen to each package Italian or Carniolan, \$1.00.
Rosedale Apiaries,
J. B. MARSHALL, Big Bend, La.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address
DEROY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—100 Hoffman frames, \$2.75; 40 ten-frame hives, 1½ story, nailed and painted, \$40; all new, never been used.
G. E. MORGAN,
1006 W. Church St., Champaign, Ill.

Italian queens, untested, \$1.00; tested, \$1.50; breeder queens, \$5.00 each; two-frame nuclei, with untested queen, \$3.00; three-frame, \$4.00.
E. M. COLLYER, 75 Broadway, Ossining, N. Y.

FOR SALE.—25 colonies pure Italian bees, in eight-frame dovetailed hives with Hoffman frames. Moore queens of 1912. Price \$8.00 each.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—2 yards of bees; section and extracting supers; eight-frame Root extractor; 1½-horse-power engine. Good honey market.
28270 THE BEE MAN, Chamberino, New Mexico.

FOR SALE.—Italian queens now ready; safe arrival and pure mating guaranteed. Select untested, \$1.00 each. All orders will receive our prompt attention.
E. A. SIMMONS, Greenville, Ala.

California Italian queens, fine honey-gatherers; gentle, none better. Select untested, 75 cts.; tested, \$1.00. Full colonies in neat modern hives reasonable.
J. E. WING, Los Gatos, Cal.

Do you wish to be treated right? Then send your orders for untested three-banded Italian queens to us—75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival, and the Golden Rule for all customers.
THE GOLDEN RULE BEE CO., Riverside, Cal.

Golden Italian queens of best strain, all cells built in strong colonies, no foul brood or other disease. Untested, \$1.00; tested, \$1.50. Cash with order. Booking orders now; delivery about April 15.
BEN ROBINSON, Taylor, Texas.

The Two B's of quality! Italian and Sicilian Buttercups for all that is best, unexcelled. Queens, \$1.00 each; six for \$5.00. Eggs, prize-winning pen, 15 for \$5.00; "A" pen, 15 for \$3.00; 30 for \$5.00. Bred in their purity. H. WILLIAM SCOTT, Barre, Vt.

Hardy three-band Italian bees and queens. Gentle, prolific honey-gatherers. Guaranteed purely mated or another queen. No disease, no loss in 1912-'13. \$1.00 each; 6, \$5.00; 12, \$9.00 by return mail. Colonies, \$6.00; nuclei, \$3.00 with queens.
S. G. CROCKER, JR., Sta. L, Baltimore, Md.

Virginia three-banded Italian queens, untested, 75 cts.; tested, \$1.00. All dead queens replaced free. Ready May 15.

S. OLICK, Box 16, Rt. 2, Mt. Jackson, Va.

FOR SALE.—200 colonies of Italian bees at \$5.00 per colony; nearly all of the Moore strain—the best honey-gatherers on earth. Queens all last season's rearing. Address
G. H. ADAMS,
Spring and Central Aves., Troy, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Virginia.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnett's, Va.

Phelps' Golden combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.
C. W. PHELPS & SON,
3 Wilcox St., Binghamton, N. Y.

Fine tested and select tested Italian queens of last season's rearing. Gentle three-banded stock that will increase your honey crop. Order now for spring delivery. Tested queens, \$2.00 each; select, \$2.50.
H. C. SHORT, Winchester, Ohio.

Montana queens, bred in the Musselshell Valley. No other bees within 60 miles; foul-brood unknown; all queen candy boiled. Three-banded Italian queens, ready June 1. Untested, \$1.00; tested, \$1.50. Orders booked now.
ELSO APIARY, Elso, Mont.

No spring dwindling. Bees from the Land of Flowers. By express, safe arrival guaranteed. Prices on application. "A pound of bees in March is worth a swarm in June." Also nuclei and full colonies. Queens of famous J. P. Moore stock. None better. Never any disease. EDWIN G. BALDWIN, Deland, Fla.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

Curd Walker's strain of red-clover queens produce workers that are fine honey-gatherers. Testimonials sent on request. Untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; 24, \$17.50. Tested, \$2.00 till June; then \$1.50.
CURD WALKER, Queen-breeder,
Rt. 1, Box 18, Jellico, Tenn.

Italian bees by the pound or in nuclei; ½ lb. bees, \$1.00; 1 lb. bees, \$1.75; 2 lbs., \$3.25; nuclei, \$1.25 per frame. Bees ready April 1. Write for prices on queens in small or large lots; also bees in carload lots. Carload lots ready May 1.
ARVIN, Nusbaum Co., Meltrim, Ga.

FOR SALE.—Swarms! Swarms! ½ lb. young bees with untested Italian queens, shipped as 1½ lbs., \$1.75; 1 lb. young bees with untested Italian queen, shipped as 2½ lbs., \$2.25, F. O. B. here; 6, 10 cts. less each. This is the best way to increase and improve your bees. Safe arrival and satisfaction guaranteed. Circular free.

W. D. ACHORD, Fitzpatrick, Alabama.

There is a key to all business; and the key to successful honey-production is "good" queens. We have them, and know how to raise them. Thirty-five years' experience. Three-banded Italians, 75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival and satisfaction to everybody. We handle successfully the orders of the largest producers.

THE RIALTO HONEY CO., Rialto, Cal.

FOR SALE.—Three-banded Italian queens and packages. Best honey-gatherers. Satisfaction or your money back. No disease. Ready about April 1. One untested queen, 75 cts.; 6 for \$4.25; 12 for \$8.00. After April 15, ½ lb. bees, \$1.00; 1 lb., \$1.50; good weight; f. o. b. here by express. Add price of queens if wanted. These are young bees, so will live longer than those you have wintered.

W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

We will require all our 2000 colonies this spring with young queens, bred from our best home and imported Italian stock. We offer the year-old queens, removed from these hives, at 40 cts. each; untested queens, this year's breeding, 60 cts. each. Special reduced prices for 100 or more, either old or young. We breed for business, not looks. No disease; delivery guaranteed. Book orders now to insure early delivery. SPENCER APIARIES CO., Nordhoff, Cal.

REAL ESTATE

FOR SALE.—40 acres, improved, in the sage belt, with fixtures to run 200 colonies bees. Price \$1000. PHIL B. REED, Santa Maria, Cal.

FOR SALE.—Feed and cider mill, with building 18 by 62, two-story and basement. R. W. FARNHAM, Midland, Mich.

FOR SALE.—New improved place—four-room house; other buildings; artesian water. Fine for bees, chickens, apples; \$900, half cash, balance on time. 61658, Box 32, St. David, Arizona.

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

HELP WANTED

Wanted at once, help in apiaries.

F. B. CAVANAGH, Hebron, Ind.

WANTED.—First-class bee-man to take charge of 200 colonies of bees. JACOB HUFFMAN, 703 West Washington St., Monroe, Wis.

WANTED.—Young man to work in apiary. State age, experience, and wages expected. CHAS. ADAMS, Greeley, Col.

WANTED.—A good reliable bee-man for the coming season. State experience, age, wages, and give references in first letter. J. B. MERWIN, Prattville, N.Y.

WANTED.—Reliable man of good habits to work with bees for season of 1913. Use automobile. Fine roads, fine climate. State age, experience, and wages. W. J. STAHLMAN, Clint, El Paso Co., Texas.

WANTED.—Thoroughly experienced bee-man to work in a series of out-apiaries; wages \$60 per month and board. Write for further information. A. J. SPURLIN, Box 38, Rosedale, Cal.

WANTED.—Young man of good habits who does not use intoxicating liquors or tobacco to work with bees for season of 1913. State wages and experience in first letter. P. O. Cohocton, Rt. 3. M. C. SILSBEE, Haskinville, N. Y.

WANTED.—Young man who understands bees thoroughly, to take charge of medium-sized apiary, and work in greenhouses and gardens also. Could furnish steady work every month in the year. Permanent position, with chance for advancement. Want young man who is sober, honest, reliable, and a quick willing worker. Address at once, stating wages expected. W. B. DAVIS & CO., Aurora, Ill.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

FOR SALE.—Soy beans, green flowering dahlia, thornless raspberry; 20 named dahlia, \$1.00 by mail. Circular free. JACOB MCQUEEN, Baltic, Ohio.

Senator Dunlap strawberry-plants. Good plants by mail, per 50, 45 cts.; 100, 75 cts.; 300, \$1.70; by express, 1000, \$3.75.

P. A. ANDERSON, Grand Mound, Iowa.

Maple syrup of finest quality, now ready for shipment. One-gallon can, \$1.15; per case of six one-gallon cans, \$6.60, F. O. B. Address C. C. PARKHURST, Rt. 1, Phalanx Station, Ohio.

POULTRY

Buff Orpingtons, Buff Leghorns, Anconas. MARLE W. WEMMER, Jacksonville, Ohio.

Rose Comb Black Minorca Eggs—15 for \$1.00. LEE GIDLEY, Morgantown, W. Va.

Sicilian Buttercups. Best of all. Eggs for hatching. Mating list free. D. S. DURALL, Hurdland, Mo.

FOR SALE.—S. C. White Leghorn eggs for hatching, \$4.00 per 100. B. CHASE, Earlville, N. Y.

Prize-winning Barred Rocks. Write for mating list—it's free. Satisfaction guaranteed. W. H. PORTER, Sandy Lake, Pa.

Two-months-old pullets, pure W. Leghorn; a few R. I. Reds; laying kind. Order early. WM. JACOBS, Star Rt., Salem, Ohio.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free. LEVI STUMB, Richland Center, Pa.

Sicilian Buttercups. The most persistent layers and non-sitting variety. Eggs, \$1.50 and \$3.00 per 15. WALTER M. ADEMA, Berlin, Mich.

S. C. Brown Leghorns, day-old chicks, \$3 per 25; \$11 per 100; stock and eggs, none better. Booklet free. H. M. MOYER, Rt. 2, Bechtelsville, Pa.

Eggs at a sacrifice from my prize-winners. Pure Kellerstrass Crystal White Orpingtons. Grand type, and pure white; \$3.00 per 15; \$5.00 per 30. JAMES R. LAMPSON, Medina, Ohio.

FOR SALE.—S. C. White Leghorns of quality, prolific layers of large snow-white eggs; 15, \$1.50. VALLEY CITY POULTRY FARM, Rt. 12, Grand Rapids, Mich.

FOR SALE.—S. C. Black Orpingtons, the kind that lay, weigh, and pay. My pen is headed by Black Chief Junior. Eggs for hatching now booked, \$3.00 for 15. C. L. COLE, Medina, Ohio.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now. CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties, too. Per setting of 15, \$1.00. Satisfaction guaranteed.

W. O. ROUDABUSH, Hagerstown, Md.

Eggs from prize-winning single comb Buff Orpingtons—2 special pens; Martz and Rogers strain, \$3.50 per 15; utility flock, free range, \$1.25 per 15; \$5.50 per 100. Also eggs from fawn and white Indian Runner ducks, scoring up to 94½; \$1.50 per 13; \$4.50 per 50. JAMES MCKENDRICK, Glenlussa Farm, Ernie, Iowa.

Famous Dumaresq Buttercups and stock. Send eggs to England, Cuba, Canada, and California, with good reports and safety. My matings are fine this year. Pens headed by "Dewey," blue-ribbon winner—first pen at Rochester; this year Toronto, second, and Palermo second, all blue-ribbon winners. Testimonials of pullets laying in 124 days. Eggs for hatching. Send for circular.

MRS. J. S. DUMARESQ,
Cato's Hall, Rt. 5, Easton, Maryland.
Vice-president American Buttercup Club.

INDIAN RUNNER DUCKS

Snow-white Indian Runner ducks; handsome and hardy; Fishel strain direct. Eggs for sale.
F. J. ARMSTRONG, Nevada, Ohio.

Select thoroughbred Indian Runner ducks, white and fawn. Eggs, \$1.00 per dozen; \$7.00 per 100.
J. C. WHEELER, 921 Austin Boulevard, Oak Park, Ill.

True Fawn and White Indian Runner ducks. Handsome and hardy, and the best of layers. I can start you with the best. Eggs, \$1.00 per 11.
H. C. LEE, Box 254, Brooksville, Ky.

Fawn and White Indian Runner duck eggs, \$1.00 per 11; \$7.00 per 100. Day-old ducklings, 25 cts. each. Mailing list free.
KENT JENNINGS, Mt. Gilead, Ohio.

Eggs that hatch from I. R. ducks, Houdans, Leghorns, Orpingtons, Minorcas, Wyandots, Ganses, and M. B. turkeys. Send for mating list.
BROOKSIDE FARM, Trimble, Ohio.

Indian Runner duck eggs, 13 for \$1.00. Fawn and white, white-egg strain. Also Mammoth Black Bronze turkey eggs, 25 cts. per egg.
SARAH WIDRIG, Rt. 29, Burt, Niagara Co., N. Y.

Pure Spencer Strain White Indian Runner Ducks. Wonderful layers of large pure-white eggs. Write for prices of stock and eggs.
BREEZE HILL POULTRY FARM,
A. R. Williams, Prop., Rt. 4, Winchester, Ind.

Do you want eggs from the original Fawn and White Indian Runner ducks? Send \$1.25, and 15 pure-white eggs will be delivered to you in perfect hatching condition, by prepaid parcel post. S. C. R. I. Reds eggs the same price.
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Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large, pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.
C. O. YOST, Box D, Rt. 4, Winchester, Ind.

BEEKEEPERS DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

Our subscribers, when planning to place orders, will do well to inquire whether or not our advertisers can supply queens on the dates desired. Mr. F. Hughes, Gillet, Ark., writes us under date of April 4 that he is booked full for spring delivery.

1913 EDITION OF A B C AND X Y Z OF BEE CULTURE.

We are just completing the first copies of the latest edition of fifteen thousand, and hope to be sending them out before the first of May. The revision of this edition has been more thorough than any previous one, and it is from an entirely new face of type, and the size increased to over 750 pages. The price is also raised to \$2.00 postpaid, or \$2.75 for the half-leather edition. We still have a few copies of the 1910 edition for sale at the old price, \$1.50 postpaid, or \$1.25 with other goods not prepaid.

LECTURES ON BEEKEEPING.

We have arranged to continue the lectures on our roof at 10 Vine St., Philadelphia, on Tuesdays and Fridays from 11 to 12 o'clock, during May and June. Tuesdays will be devoted to instructions for beginners, handling bees, taking swarms, preparing for the honey-flow, etc. Fridays will be for advanced beekeepers, the scientific side of the transformation of nectar, the formation of wax, with some instructions as to the bacteriological side of foul brood, its contagion, etc. Kindly note that the hour is 11 to 12, on both Tuesday and Friday.

Up to the time of going to press we have had comparatively few reports of serious loss to beekeepers or supply-dealers in Ohio from the recent floods, although there have undoubtedly been many individual losses not yet reported. The most serious loss to supply dealers' stock is probably that reported by E. W. Peirce, Zanesville, whose announcement is found on page 9. Mr. Peirce, writing us on April 2, said that the water reached a point 16 feet higher than any previous record, the crest of the flood coming within three feet of the ceiling of the second floor. Mr. Peirce says: "As yet I am unable to make any thing like an accurate estimate of the loss. Provisionally the last carload order was not in, and the stock was the lowest for several years." Advice received in the last few days from Mr. Peirce indicate that he is now able to take care of business promptly, and his many friends and customers will do him a favor by sending along their orders as usual.

SWEET-CLOVER SEED.

So far as we can learn, the supply of white-sweet-clover seed, either hulled or unhulled, is exhausted, excepting two moderate-sized lots in the hands of seed-dealers, which is being held at very firm prices. We can offer hulled imported seed from New York in lots of 100 lbs. or more, or hulled domestic seed from Lawrence, Kan., subject to previous sale and supply on hand, at \$28.00 per 100 lbs. The supply is so limited that you will need to speak quickly if you secure any of it. A number who have ordered the white sweet clover, which we have been unable to supply for several weeks, have consented to take the yellow biennial, of which we still have a fair stock on hand. From all that we can learn, we believe you will make no mistake in trying this variety. For all purposes it is considered by many who have tried it fully equal to the white. We will supply the seed, while it lasts, at the same old price at which we have been selling.

	1 lb.	10 lb.	25 lb.	100 lb.
Hulled yellow biennial,	.28	\$2.60	\$6.25	\$24.00
Unhulled yellow biennial,	.21	1.90	4.50	17.00
Hulled yellow annual,	.14	1.20	2.75	10.00

The A B C and X Y Z of Bee Culture came to hand. I want to say the information I got by reading about swarming, uniting, transferring, feeding for winter and stimulation, are alone worth the price of the book, not saying any thing further on the other subjects it contains. You certainly have given the book the right name, as it gives you just what you want from start to finish.

FRANK LANGOHE.

Columbia City, Ind., March 5.

ESTABLISHED 1891

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan and Cherry Sts.**San Antonio, Texas**

Factory and Warehouse.

To Our Friends and Patrons

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as all those engaged in the business.

Owing to the constantly increasing demand for comb foundation and beekeepers' supplies, we have again been compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past year, our sales having aggregated approximately \$100,000.00.

Although it has been found a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the 5 $\frac{3}{8}$ -inch frames, same as described in our catalog, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the 10-frame hives..

Shortly before the death of Mr. Mayfield, Mr. Udo Toepperwein sold his interest to Messrs. R. W. Hearne and B. L. Raborn, well-known business men of San Antonio. The retirement of the older members of the company will in no way change the policies of the new management except to increase materially the capital with the view of carrying a large stock of supplies. Mr. Morris, who has been practically the manager of the Toepperwein & Mayfield Co., continues with the new management.

It is the intention of the new management to increase materially the capital of the company, with the view of carrying a stock of supplies that will meet all the requirements of the trade. This will enable us to effect prompt shipments at all times, and thus avoid any delay and annoyance to customers on account of shortage of stock.

It will be our endeavor to accord our customers all possible courtesies and consideration in any matters that may arise. Mistakes will occur at times, as is only natural, and we only ask that they be brought to our attention so that they may be rectified. Our customers may be assured of the best quality of goods at as reasonable prices as are consistent with business methods.

Our new catalog on request. Address

TOEPPERWEIN & MAYFIELD CO., - San Antonio, Texa

ROOT'S BEEKEEPERS' SUPPLIES . . .

You may have a catalog of supplies; but if you haven't ours you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Extensive and prosperous beekeepers are writing us frequently letters like the following:

The A. I. Root Co.:—We have bought bees almost every season for a great many years, and in this way handled several styles of frames; but to date we have not found any thing that compares with your metal-spaced frame for an all-round fixture.

For the benefit of students we have experimented with other styles of metal spacers, and in every case imperfections were soon discovered. Your metal-spaced frame has many good points to recommend it, and we began using this style of frame the first season it was put on the market, and have more than 20,000 of them in use now.

For strength and rapid manipulation, this frame has no equal. We use it alike in brood-chamber and extracting-supers, as with our plan of management a frame may be in the brood-chamber at one time and in the super at another, or the reverse may be true.

Janesville, Minn., March 8, 1913.

THE HOFMANN APIARIES, per E. L. Hofmann.

Our catalog also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

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New York, 139-141 Franklin St.	Chicago, 213-231 Institute Pl.
Philadelphia, 8-10 Vine St.	Des Moines, 565 W. 7th St.
St. Paul, 1024 Mississippi St.	Syracuse, 1631 Genesee St.
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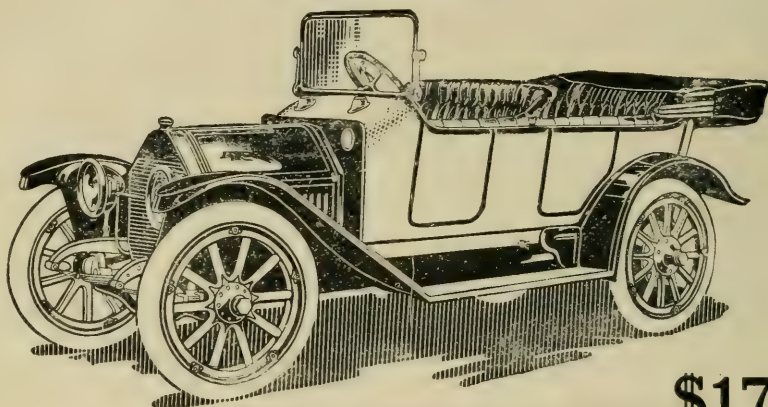
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Excellent
Models



Model 5A Touring Car, Fully Equipped, **\$1700**

You Have Worked for Your Money; Let Your Money Work for You.

Make your bank account get out and hustle for the things worth while in life. Make it buy for you and your family the many pleasures of a **Cartercar**. This is an investment that will reap something more than sordid interest.

Imagine some of the many enjoyments you would be able to get from a **Friction-driven Cartercar**. A spin into town, long drives in the cool of the evening, the social possibilities for the young folks, and certain transportation for the children in bad weather—all reflect the dignity of a successful man.

Don't be frightened by the much talked of "after cost" of an auto-

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The Friction-transmission is just the thing to climb hills and plough through bad roads with. No chance of putting your machine in the repair shop if you want to ascend a steep grade or ride on an unimproved road.

Cartercar is presented in four splendid models: Model 5A Touring Car \$1700, Model 5B Roadster \$1600, Model 5C Colonial Coupe \$1900, Model 5D \$2000. All models include Electric starting and Lighting and in their full equipment.

Write for Catalog

Cartercar Company, Pontiac, Mich.

Branches: New York Chicago Kansas City Detroit Atlanta

Cleanings in Bee Culture



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One Year

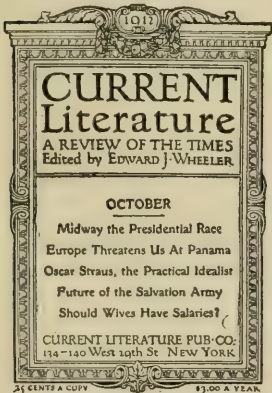
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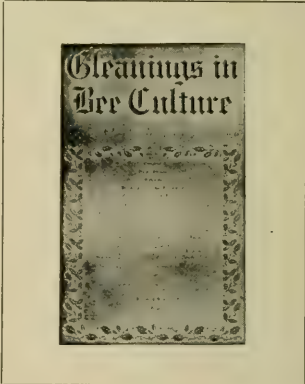
PICTORIAL REVIEW (Three Months).—The fashion pages of this magazine have won for it a circulation of over eight hundred thousand copies monthly. Its styles and patterns are famous the world over. Its special articles, stories, and household departments are timely, and furnish instructive reading for every woman.



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Pictorial Review . . .	15 cents a copy . . .	3 copies . . .	\$.45
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Current Opinion . . .	25 cents a copy . . .	3 copies . . .	.75
House Beautiful . . .	25 cents a copy . . .	3 copies . . .	.75
Gleanings in Bee Culture . . .	One year . . .	24 copies . . .	1.00
Total regular cost			\$3.40

OUR RATE for the Combination, \$1.50

Send Your Order for the Combination to
The A. I. Root Company, Medina, Ohio

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“FALCON” Beekeepers’ Supplies

Beeway Sections— 250, No. 1, \$1.60; No. 2, \$1.40.
“ “ 500, “ 2.75; “ 2.50.
“ “ 1000, “ 5.50; “ 5.00.
“ “ 5000, “ 23.75; “ 21.25.

Plain Sections, 25c per 1000 less.

Dewey Foundation-fastener, each, \$1.25; by mail, \$1.50.

Light Section Foundation, per pound 1 lb., 65c; 5 lbs., 64c; 50 lbs., 59c
Light Brood Foundation, per pound 1 lb., 58c; 5 lbs., 57c; 50 lbs., 52c
Hoffman Brood-frames, “ “ 10, 35c; 100, \$3.00
No. 14 one-story Dovetailed hive, cover, body, bottom, frames, 8-frame 1, \$1.50; 5, \$7.00; 10, \$13.50
“ “ 10-frame 1.60 7.50 14.50

Dovetailed Supers complete without sections and starters—

No. 2, 4¼x1½ sections } 8-frame: 5, \$2.50; 10, \$4.80
No. 2B, 4¼x1½ sections } 10-frame: 5, 2.75; 10, 5.30
No. 2F, 4x5 sections }

Ideal Bee-veil, 65c; by mail, 75c

Standard Smoker, 85c; by mail, \$1.10

Untested Italian Queens, one, \$1.00; six, \$5.50.

Tested Queens, one, \$1.50; six, \$8.50

DEALERS EVERYWHERE.

Red Catalog, Postpaid.

“Simplified Beekeeping,” postpaid.

W. T. FALCONER MFG. CO., FALCONER, N. Y.

Where the good bee-hives come from

“Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time”
It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.



Established 1885

We carry an up-to-date line of

BEEKEEPERS' SUPPLIES

Prices the lowest in the West. Write us for our 60-page catalog, ready to mail you. Free for the asking. We can fill your orders promptly and satisfactorily. Our old customers know what we handle; to new ones we can say that we have

THE ROOT CO.'S MAKE OF SUPPLIES,

hence there is nothing to fear as to quality.

Send us your rush orders and get your goods before swarming time arrives.

Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
HIGH HILL, MO.

DO YOU LOVE SWEETS?

RALPH WALDO EMERSON DID

He said you can attain to royalty by loving sweets.

“He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man.”

“HOW to come at these?”

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*.

Want to know how?

Send \$1.00 for a year's subscription to

The Guide to Nature
Arcadia, Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, “a bee-man” and a naturalist.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—Fancy and No. 1 white comb, 16 to 17; fancy white, 11 to 12. Beeswax, 30.
Boston, April 19. **BLAKE-LEE CO.**

ALBANY.—The honey market is very quiet, being between seasons. No comb honey—only extracted on the market, and that is in slow demand. Beeswax, 30 to 32.
Albany, April 18. **H. R. WRIGHT.**

COLUMBUS.—Our market is very dull on comb honey. Plenty of Colorado and Eastern honey to supply all demand. Fancy white comb, 17 to 18; No. 1, $16\frac{1}{2}$ to 17; No. 2, \$2.25 per case of 24 sections.

Columbus, April 16. **THE EVANS & TURNER CO.**

DENVER.—We quote comb honey in a jobbing way at the following figures: No. 1, \$3.05; fancy, \$3.15 per case of 24 sections; extracted honey, white, 9; light amber, 8; strained, 6½ to 7. We pay 28 cts. in cash and 30 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, April 16. **FRANK RAUCHFUSS, Mgr.**

CINCINNATI.—There is a fair supply of comb honey on the market, and we are selling our fancy double-decker comb honey at \$3.75 to \$4.00 a case; fancy extracted honey, in 60-lb. cans, at 9 to 10 cts. per lb. and amber extracted honey in barrels at 6½ to 8, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 28 to 30 cts. delivered here; and if taken out in trade, 2 cts. per lb. more.

Cincinnati, April 17. **THE FRED W. MUTH CO.**

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

Now, Then, for Your Early Bee-supply Orders!

Send us a list of the Bee Supplies you want.

Our prices will astonish you.

Also send us your old combs.

We will render your wax and save you money.

Write for particulars.

THE FRED W. MUTH CO.

"The Busy Bee Men"

204 Walnut Street

Cincinnati, Ohio

An Active Season is Here

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Hives should be ordered at once if they are to be ready for swarms. Frames, and other inside fixtures too, should be put together now.

If you are wanting any special goods, orders should be made at once. Other cars are coming regularly from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

The mailing of our new catalog was completed some time ago. If you are not on our mailing list send us a postal-card request for this catalog.

If you want to buy in quantities considerably larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder—the best in the market. Write for our catalog.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor.

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice: otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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KANSAS CITY.—The supply of comb honey is entirely exhausted. We still have some demand. The supply of extracted honey is light—demand also light. We quote extracted white, 8 to 8½; extracted amber, 7 to 7½; beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, April 17.

SCHENECTADY.—We have had a few small shipments of comb honey from producers who have not succeeded in closing out all their own crop; and, on account of the maple-sugar yield being very small, it meets with ready sale at fair prices. But little is doing in extracted.

Schenectady, April 7. CHAS. MACCULLOCH.

INDIANAPOLIS.—Market is now practically bare of fancy white comb honey. No. 1 white is selling at 16 to 17; amber comb is in slow demand, and at varied prices. Best extracted sells at from 11 to 12 in five-gallon cans, according to quantity. Beeswax is in good demand, and producers are being paid 30 cents cash or 32 in trade.

Indianapolis, April 16. WALTER S. POWDER.

CHICAGO.—Comb honey has cleaned up, this market being practically bare at this time. But that is not the case with the alfalfa and sweet-clover grades. Fancy comb brings 17 to 18, with other grades from 1 to 5 cts. per lb. less. Extracted clover and lindens bring 9 to 10; other white honeys, 7½ to 9. Beeswax, 31 to 32.

Chicago, April 17. R. A. BURNETT & CO.

BUFFALO.—Our market has nothing new to report; receipts are very light. We think about all the comb honey has been sent in. Prices are steady, but selling slow. We quote fancy white comb honey, 17 to 18; choice, 16 to 17; No. 1 ditto, 15 to 16; No. 2, 13 to 14; no dark offered. No. 1 white extracted brings 9 to 10; no dark or amber is offered. Beeswax, 27 to 28.

Buffalo, April 18. W. C. TOWNSEND.

NEW YORK.—We have really nothing to report of any consequence. A few little lots of comb honey still are arriving, but not to cut any figure. If in good condition, it will bring about the same price as in our last quotation; but where some lots are beginning to show signs of crystallization they will have to be sold at a much lower figure. Extracted honey, all grades, is very quiet. While the stock is not heavy, there are shipments coming in right along from the West Indies—more than enough to supply the demand. No change in prices. Beeswax is steady at 30 to 32, according to quality.

New York, April 18. HILDRETH & SEGELKEN.

Convenient Banking

Banking by Mail is the most convenient method of transacting financial affairs.

You can deposit your savings with the Savings Deposit Bank Company of Medina by sending Money Order, Check, Draft, or Currency in Registered Letter, and they will reach us safely.

The money is protected by the United States Postal authorities until it arrives, and is then safeguarded by this strong successful bank.

We pay 4 per cent compound interest on savings accounts of \$1.00 or more.

Further information furnished upon request.

The SAVINGS DEPOSIT BANK COMPANY

Medina, Ohio

Under the Supervision of the State of Ohio

CINCINNATI.—The market on comb honey is in good demand with a fair supply. No. 1 white sells at \$3.65 per case of 24 sections wholesale, and \$4.00 per case retail. There is no demand for off grades. Light extracted honey in 60-pound cans, 8 to 8½. White extracted honey in 60-pound cans, 9 to 10. Beeswax is selling at \$34.00 per 100 pounds. The above are our selling prices, not what we are paying. Cincinnati, April 18. C. H. W. WEBER & Co.

CROP REPORT BLANKS

will be sent to every subscriber of the "Review" in proper time, and the crop conditions as given by these reports will be published later.

BRINGING BUYER AND SELLER TOGETHER

for the sale of your honey crop will be another work that will be carried on the same as last year.

CANS AND GLASS PACKAGES

will be furnished the subscribers by the "National" the same as last year. We may have better prices.

THE NATIONAL CONVENTION REPORT

begins in the March number. Don't you want to read it? One dollar gives you the "Review" a year. Your sample copy is waiting your request. Better send for it.

The National Beekeepers' Ass'n, Detroit, Michigan

214 Hammond Building

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Forteen to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

Outside cover page, double price.

Reading notices, 50 per cent additional.

Cash-in-advance discount, 5 per cent.

Cash discount if paid in ten days, 2 per cent.

Bills payable monthly.

No medical or objectionable advertising accepted.

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Folks Like Michigan Comb Honey

However it is so scarce that they can not get any. It is a case of under-production. It will pay YOU TO MAKE THIS YEAR A COMB-HONEY YEAR. Pages 12 and 13 of our catalog show comb-honey outfits. They're Root's goods too. . . . Beeswax wanted.

M. H. HUNT & SON, LANSING, MICHIGAN
OPPOSITE LAKE SHORE DEPOT



We are booking orders for Italian bees by the pound, with or without queens. . . . Write for prices on quantity wanted.



FRUIT-GROWERS!

Send 10 names of fruit-growers and 10 cents, and get "The Southern Fruit Grower" four months. Tells all about fruit-growing, gardening, poultry-raising, etc., in the South. Contains from 32 to 40 pages each month. Address

THE SOUTHERN FRUIT GROWER
Dept. BC, Chattanooga, Tenn.



Line-bred Carniolan Queens

Carniolans winter with their colonies most populous, build up fast in the spring, enter supers more readily, cap their honey very white, are gentler, and are no more inclined to swarm than Italians if properly managed.

Ask for our FREE paper, "Superiority of the Carniolan Bee," describing these bees more fully, and best management for comb and extracted honey.

Orders for queens booked now. Delivery soon.

Untested, \$1.00; doz., \$9.00. Tested, \$1.50; doz., \$12.00.

ALBERT C. HANN, PITTSBURY, NEW JERSEY
Carniolan Queen Breeder

BEES AND SUPPLIES

You will soon need a bill of supplies. Let us quote you before placing your order. We please thousands, why not you? Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

Western Beekeepers can save money and get the best goods obtainable especially made to meet Western conditions. Send for new catalog and special price list to
The Colorado Honey Producers' Assn., Denver, Colo.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

We have made arrangements with a large Southern breeder to furnish us with BEES and QUEENS, and orders will receive our prompt attention commencing April 1. First come, first served. Be first.

ORDER BEE-SUPPLIES NOW.—Large car of new goods on the way to fill the rush of early orders coming in. Send your orders now.

POULTRY FEEDS AT WHOLESALE—Write for special prices of feed to be shipped with your order of bee-supplies. Cut out the middle man.

BEE-SWAX.—We can use five tons of good first-class wax. Send yours in now. Cash or in trade. Free catalog. Ask for one.

S. J. GRIGGS & CO. . . 26 North Erle Street . . TOLEDO, OHIO

"If Goods are wanted Quick, send to Pouder."



Bee Supplies Up to Date

EQUIPMENT. — Storeroom built expressly for the business; large concrete basement with just enough moisture to prevent breakage in sections and shrinkage in dovetailed corners of supers and hives. Electric lift brings up two tons of goods to first floor in thirty seconds for shipment. Does this appeal to you?

QUALITY. — Root goods at the factory schedule of prices, whether you require one hive or a hundred. This is the quality that I have handled for nearly a quarter of a century, and the kind that you can recommend to your visiting neighbors. I MIGHT have increased my profits for a SHORT TIME by handling other goods, but I would not have remained so long in the business.

GUARANTEE. — Many articles described in my catalog can now reach you by parcel post, and I assume all responsibility in safe arrival of goods. I have the very finest tight-seal glassware for putting up extracted honey, and I guarantee safe arrival—no breakage at purchaser's loss. I have waxed-paper honey-jars that are a decided success wherever they have been used.

MY CATALOG. — My catalog describes all of these things, and contains valuable information for those who are interested. I shall be pleased to show you how promptly I can get one into your hands if you will drop me a card.

BEESWAX. — Remember me when you have wax to offer, cash or trade, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue

Out of the Flood!

I desire to announce to my bee-keeping friends that I have secured a fine new location, and am already shipping small lots of goods, and expect to have a carload of choice fresh stock direct from the factory in my warehouse by the time this number of GLEANINGS reaches its readers. I expect to be able to furnish promptly as usual all regular goods from Zanesville, and with the resumption of service by the railroad and express companies, as well as the electric lines and parcel post, I am now able to give prompt deliveries of new stock from Zanesville.

If any one seeks a bargain in damaged stock, write for prices. Otherwise new stock will invariably be furnished. A continuance of your patronage is solicited.

E. W. Peirce, Zanesville, O.

So 6th St., Airdome Theater Bldg.

Mr. Successful Honey-producer:

Have you a son to learn your methods and policies, and to take over eventually the responsibility of your business when you wish to be relieved of it? If not, please give a healthy, ambitious young college man the opportunity he craves. Just let me write to you, anyhow.

P. C. G., Box 3442,
GLEANINGS IN BEE CULTURE.

Pure Golden Italian Queens

Better than Last Year

Mated, \$1.00; select mated, \$1.50; select tested, \$3.00; breeders as high as \$50.00. Send for booklet, and get the best . . . My breeders produced over 200 pounds of surplus each last year. Try them and see what they will do for you.

GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

PATENTS

25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLachlen Building, Corner
Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts

Patent Counsel of
The A. I. Root Co

Boston New England

Is the Shipping Center of
Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for discounts--we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, \$1.00; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c.

E. E. MOTT, Glenwood, Mich.

Beekeepers!

If You Have Dwindling Colonies

send a postal for price list on young Italian bees by the pound, with or without queen. No DISEASE. IT WILL PAY YOU TO INQUIRE AT ONCE. Satisfaction guaranteed. Reference by special permission, First National Bank of Pomona, Calif. Address 475 W. Center St. J. M. STRIPSKY, Pomona, Cal.

Bees, Queens, Orange Honey



Ruby FREE

To introduce our Genuine Maztec Gem (U. S. Letters Patent)—the only satisfactory substitute for the diamond that stands all tests and has permanent dazzling brilliancy, we make this special offer:

If you will mention this advertisement and send us 5 two-cent stamps for our beautiful Art Catalog "The Story of the Maztec Gem," we will send you free with catalog a genuine uncut Navajo Ruby (set at \$50.) Bought by us from Navajo Indians, together with a cost-price offer for cutting and mounting.

Write today: **FRANCIS E. LESTER COMPANY**
Dept. 62G, Mesilla Park, N. Mex.

LEWIS HIVES ARE BUILT LIKE FURNITURE

ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

BEEKEEPERS

Your busy season is close at hand. Get wise, and place your orders with the supply dealer who will save you money and serve you best with Root's quality sections, frames, foundation, smokers, extractors, etc. I can serve you now without delay. My 1913 catalog tells you all about these things; besides, it contains a lot of information to those interested in bees. Special attention given to the breeding of three-banded Italian bees and queens. Catalog free.

EARL M. NICHOLS

Lyonsville, Massachusetts

ATTENTION!

Very important to all beekeepers all over the world who desire to improve their native or mixed strains of bees!

THE DIRECT EXPORTATION FROM CARNIOLA OF THE GRAY-BANDED ALPINE BEE, which until now was conducted by the Imperial Royal Agricultural Ass'n of Carniola, the undersigned will, IN THE FUTURE, MANAGE ON HIS OWN ACCOUNT.

JOHANN STRGAR, Wittnach,

P. O. Wocheiner Feistritz, Upper Carniola (Krain), Austria.

Owner of 58 Honors awarded to him at various apicultural exhibitions for his achievements as a breeder of the best strain of Carniolans and producer of apicultural products. ALL QUEENS TAKEN FROM FULL COLONIES, AND NOT OVER ONE YEAR OLD. Mailed postage free. Dead select tested queens will be replaced if returned in 24 hours after arrival, except when they arrive in such a state in South America or Australia. Dead select untested queens can not be replaced. Send remittance per Intern. Money Order with order. Safe arrival of nuclei and hives not guaranteed. Orders of this kind must be accompanied by freight expenses. The safest transport of stock is in Carniolan box hives. After arrival or later the combs can be cut out to fit any frame. Prices of select tested queens: March, April, May, \$5.00; June, July, Aug., Sept., Oct., \$3.50. Select untested queens: June, July, Aug., \$2.00. Carniolan box hives with 4 to 5 lbs. of bees, select tested queen, brood, combs, honey, \$7.00, on board R. R. station Wocheiner Feistritz. Write English for complete Price List and new Booklet (which will be mailed postage free) under above address.



No new blood introduced for over EIGHT YEARS

PURE QUEENS

Golden Strain Pedigreed
Never had foul brood.

Swarthmore Apiaries
Swarthmore, Pa.

FAMOUS QUEENS . . . DIRECT FROM ITALY

Bees more beautiful, more gentle, more industrious; the best honey-gatherers. Universal Exposition, St. Louis, Mo., 1904, the highest award. Extra breeding queen, \$3.00; selected, \$2.00; fertilized, \$1.50. Write

ANTHONY BIAGGI, Pedevilla near Bellinzona, Italy

SAVE TIME--- Fold your sections and put in foundation at one operation, quick and perfect, with a Rauchfuss Combined Section Press and Foundation Fastener; guaranteed to give satisfaction. Send for illustrated circular. Price \$3.00 delivered anywhere in U. S.

The Colorado Honey Producers' Assn., Denver, Colo.

The A B C of Bee Culture

The only cyclopedia on bees, 750 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$2.00 postpaid; money refunded if unsatisfactory.

THE A. I. ROOT CO., Medina, Ohio.

SPECIAL NOTICES

TO ADVERTISERS OF BEES AND QUEENS.

The following is addressed mainly to present or prospective advertisers of GLEANINGS IN BEE CULTURE who seek customers among the readers of our columns; and while it is addressed especially to those who wish to advertise bees or queens, it may apply in some respects to other advertisers as well. It is prepared in this form so that any one who receives it may understand that its application is general, and that he alone is not made the subject of special requirements or conditions not required or imposed on others.

The supplying of queen-bees, and to a less extent bees in colonies or nuclei or pound packages, is attended with a good many difficulties not readily understood by those who have not actually had one or more seasons' experience in this trade. To explain this, let us relate from our own experience as queen-breeders, and from the correspondence which reaches us both from our advertising friends and from subscribers to GLEANINGS who have ordered bees and queens from our advertisers or elsewhere.

At the beginning of a season a queen-breeder may have on hand a fairly good stock of queens; but having been reared very late the previous fall he has not had time to test. Another breeder may have on hand a quantity of tested queens, or perhaps a pretty liberal proportion of select tested or a number of good breeding queens, worth anywhere from \$5.00 to \$10.00. Now, unless the advertiser is very explicit as to the stock on hand, and as to the probable dates when he will be able to begin deliveries, customers may be disappointed greatly in not being able to get the grade of queen wanted from a certain advertiser or on the date expected, and too much care can not be taken to make the advertising clear and explicit. A number of new advertisers every year get into serious difficulty because their facilities for raising queens being limited, and the price quoted too low for safety, they receive orders early in the season which they expect to be able to fill shortly, and accept the money for the same, hoping to supply the stock within a reasonable time. Unfavorable weather may ensue, and they find themselves unable to fulfill their plans, and their customers are indignant and demand their money returned. A good deal of this trouble, which often assumes pretty serious aspects, could be avoided by more care in the wording of the advertisements, occasionally by taking more space. We therefore caution our advertisers to be explicit in their promises as to grades and quantities, and dates when deliveries can be made; and we caution our readers to understand these things before placing orders. It is amazing to learn that beekeepers will order queens from points one or two thousand or more miles away in lots of fifty or a hundred or more, cash with order, without knowing these things. The compliment is appreciated by the publishers of GLEANINGS, showing the confidence in which our advertisers are held; but, at the same time, where a small breeder will occasionally make very low prices to establish himself in the trade, careful discrimination should be made in the placing of large orders between the breeder with very limited experience or facilities, and those who have had years of experience and ample facilities for handling large orders. It would be unfair for the publishers to refuse space to a small but worthy queen-breeder simply because his output is very limited, for he may have some very fine stock, and it may be a decided advantage to those who are wanting only a few queens to get them from a small breeder at a moderate price. On the other hand, among the small breeders are occasionally found those who either are unprincipled or so inexperienced that they are not worthy of the confidence of our readers; and to make a distinction between these we require of all advertisers the most definite and explicit information in regard to their plans. We must know of every one securing space in our columns how large a yard he has from which he expects to raise queens; what breeding stock he has; when he expects to begin deliveries; and, more than all this, we must have reliable information as to the character of the advertiser; whether he will properly take care of orders placed in his hands, and promise to return promptly on request funds which have been placed in his hands for certain orders. Unless this information is fully supplied we shall decline the use of our columns to any one unwilling or unable to furnish it.



Notice! Queens by Return Mail, from Caraway's Prize Winning Stock.



Three-banded Italians only, at the following prices: Untested, 90 cts. each; 12 for \$9.00; 100 for \$65.00. Tested, \$1.00 each; 12 for \$10.00. I have a few fine breeders at \$5.00 each.

Two hundred two-frame nuclei: One for \$3.00; ten for \$27.50. For larger number, write for price. Also bees by the pound. One pound for \$1.50; 10 one-pound packages for \$12.50. Add to the above the price of the queen or queens desired. I guarantee nuclei and bees by the pound to arrive in fair condition within a radius of 1250 miles. Positively no disease in my apiaries.

On all queens purchased of me I guarantee them to give entire satisfaction. I use the best-known methods of rearing queens. My original stock was from Root's strain and other prominent breeders, and I keep adding imported blood to by apiaries.

I hold 92 first, 45 second, and 2 third prizes on my bees and queens and products of my apiaries. This speaks for itself. The best possible to obtain. My three-banders carried off first prize again at Dallas and Waco last fall.

I will have from 500 to 1000 mating-nuclei. I also sell nuclei. If interested write for circular and price list describing my bees and queens. It is free.

B. M. Caraway, Mathis, Texas



BREEDING QUEENS . .

Can be sent out any time after May 1. We have a choice lot of Italian queens at \$2.50, \$5.00, and \$10. No untested queens before July. Send for circular.

Doolittle & Clark, Marietta, N. Y.
Onondaga County

Queens reared scientifically from breeders perfected by years of elimination of all undesirable traits, are far better and more prolific than the ones hatched from a natural swarm of supersedure cells. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating. We have never had any disease in or near our apiary. If you are interested, write us for booklet. Untested queens, 75 cts.; dozen, \$8.00.

WALLIN & CORLIS, Brooksville, Ky.

PHARR'S QUEENS.

We desire to thank our former patrons, and ask that, when you are in need of Golden or three-banded Italians, you send your order to us and receive fair treatment. Tested, \$1.50; untested, \$1.00. For prices on large quantities write us. . . . Breeders, \$3.00 to \$5.00.

New Century Queen Rearing Co.
Berclair, Texas

W. H. LAWS

is again ready to fill your orders for queens the present season. Law's Red-clover Italians are as good as can be had.

One firm who bought over 1100 queens from me in 1912 says, "Your queens are very satisfactory." We are booking orders now, and we are going to do our level best to mail all queens by return mail when so ordered. My bees are absolutely clean and free from all disease.

Queens sent out under the usual guarantees. Prices: Single queen, \$1; six for \$5. Breeding queens, none better, each, \$5.

W. H. LAWS, BEEVILLE, BEE COUNTY, TEXAS

Taylor's Three-banded Italian Queens

are now Ready to go by Return Mail

We have hundreds of fine testimonials about our queens. Untested, \$1.00 each or \$9.00 a doz. Tested, \$1.25 each or \$14.00 a doz. Select tested, \$1.50 each or \$16.00 a doz. Breeders, the very best, from \$3.00 to \$5.00 each. No better queens raised. Send all orders to

J. W. Taylor & Son, Beeville, Texas

GET TOP NOTCH PRICES FOR YOUR HONEY BY USING LEWIS SECTIONS AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributer. G. B. Lewis Company, Watertown, Wis.

SPRING IS HERE

and the bees are flying, breeding, and increasing in strength. . . Swarming will soon take place. . . Are you prepared for the increase? . . Be forehanded, and have your hives all ready. . . We carry a large line of hives and other goods. Our catalog for 1913 will be sent you on request.



THE A. I. ROOT CO., SYRACUSE, N. Y.

DADANT & SONS, Hamilton, Ill.

Dear Sirs:—In reply to your favor I take this opportunity to let you know that I am a customer of yours. I used considerable of your Surplus foundation some time ago, but got side-tracked. I would have saved money by using your foundation.

R. M. GUTHRIE, Reno, Nev.

DADANT & SONS, Hamilton, Ill.

Dear Sirs:—Mr. N. E. France's recommendation of your goods is all O. K., but I have one that is more convincing, at least for me. I own five yards, and nearly all the combs in them are drawn from Dadant's foundation. There must be a reason.

J. M. DONALDSON, 51 E. 3d St., Mooreston, N. J.

Agents Everywhere.

Write to-day.

DADANT & SONS
HAMILTON, ILLINOIS.

Factory Prices for the Asking— on Genuine Witte Engines

**FREE
Engine
Book**

THE genuine Witte—conceded the best farm engine in America—now offered at actual wholesale prices. Yes, this is the engine that has lead the gasoline engine field for 25 years. Dealers have been getting the highest prices for the Witte. Now you can get one at actual factory price—what the dealer paid—and have the finest engine in your county.

Our Gas Well Saves You Many Dollars More

We do more than give you ordinary factory prices. We are the *only* manufacturers who have our own gas well. Power, testing, forge, foundry and heating fuels cost us nothing. You get the benefits. But you couldn't afford to own any other engine even if the Witte cost twice as much—because an average of 1 cent for every horse-power per hour *cuts gasoline bills in half*—rays for your engine in no time.

Every part *guaranteed 5 years—full rated horse power on minimum gasoline guaranteed too.* Built in all sizes from 1½ to 40 h. p., every one tested to 10% over load.

WRITE FOR 60 DAYS FREE TRIAL OFFER

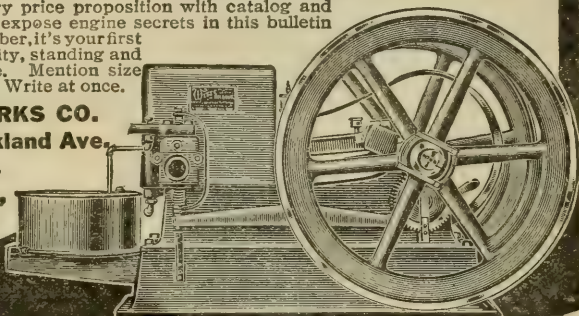
and complete, direct, factory price proposition with catalog and special offer bulletin. We expose engine secrets in this bulletin that will startle you. Remember, it's your first chance at an engine of quality, standing and reputation at a small price. Mention size needed or work to be done. Write at once.

WITTE IRON WORKS CO.

1932 Oakland Ave.

Kansas
City,
Mo.

**Every Part
Guaranteed
5 Years**



Keep Ants Away

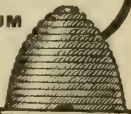
They will not attack or come near woodwork if it is painted with

AVENARIUS CARBOLINEUM

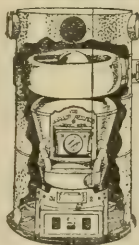
REGISTERED

and will stay away from beehives so protected. Write for circular.

Carbolineum Wood Preserv'g Co
Depot 103, Milwaukee, Wis.



BUY YOUR FURNACE \$10 DOWN \$10 A MONTH



Our monthly payment plan of selling direct saves you the dealer's profits and excessive charges for installation. The

JAHANT FURNACE

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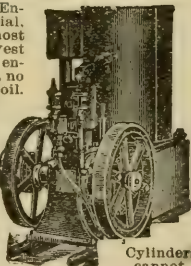
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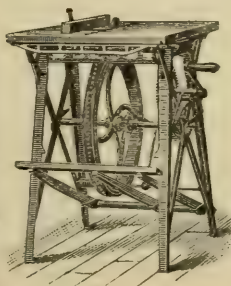
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WANTED.—Second-hand empty beehives. "Key," 3613, GLEANINGS IN BEE CULTURE, Medina, Ohio.

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We will requeen all our 2000 colonies this spring with young queens, bred from our best home and imported Italian stock. We offer the year-old queens, removed from these hives, at 40 cts. each. Untested queens, this year's breeding, 60 cts. each. Special reduced prices for 100 or more, either old or young. We breed for business, not looks. No disease; delivery guaranteed. Book orders now to insure early delivery.

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Try my famous strain of bees and queens, and be convinced that they are all I claim for them. For honey-gathering they have few equals, being bred strictly for business from the best strains that could be had, both queens and drones, as it is as important to have drones of the best as it is queens. Queens, Italian three-band, or Golden five-band, and Carniolans, bred in separate yards. Untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; 25, \$17.50; 50, \$34.00. Nuclei, with the untested queen, one-frame, \$2.50; 6 one-frame, \$15.00; two-frame, \$3.50; 6 two-frame, \$20.00. Nuclei with tested queen, one-frame, \$3.00; 6 one-frame, \$17.40; two-frame, \$4.00; 6 two-frame, \$23.40. Satisfaction and safe arrival and prompt service guaranteed.

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Virginia apple land will make you independent. \$15.00 per acre and up. Easy payments. Buys No. 1 fruit and farming land. Write at once for our illustrated booklet, and low excursion rates. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., Room 73, Roanoke, Va.

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Bee-ranch in south Texas for sale. Just out of city limits of San Marcos, a splendid location for an apiary or poultry-ranch—no bees near; splendid bee-range. Good market for all kinds of produce; nice modern cottage. One of the most healthful locations in Texas. If interested, address

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Wanted at once, help in apiaries.

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WANTED.—First-class bee-man to take charge of 200 colonies of bees.

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WANTED.—At once. Several more good sober assistants in our apiary work right away. Give wages wanted and particulars in first letter. THE LOUIS H. SCHOLL APIARIES, New Braunfels, Texas.

WANTED.—Thoroughly experienced beeman to work in a series of out-apiaries; wages \$60 per month and board. Write for further information.

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White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

The New Way. Spearmint Gum by Parcel Post. Special offer. Three 5-ct. packages for 10 cts. post-paid. Agents wanted. Send for sample and particulars. TOURIST GUM CO., Rochester, N. Y.

A genuine mad-stone, virtue and merit guaranteed. Will send on approval. A positive sure cure for stings and poisonous bites. Will exchange for bees, honey, and supplies.

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Buff Orpingtons, Buff Leghorns, Anconas.

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Rose Comb Black Minorca Eggs—15 for \$1.00. LEE GIDLEY, Morgantown, W. Va.

Sicilian Buttercups. Best of all. Eggs for hatching. Mating list free. D. S. DURALL, Hurdland, Mo.

FOR SALE.—S. C. White Leghorn eggs for hatching, \$4.00 per 100. B. CHASE, Earlville, N. Y.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free.

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Sicilian Buttercups. The most persistent layers and non-sitting variety. Eggs, \$1.50 and \$3.00 per 15. WALTER M. ADEMA, Berlin, Mich.

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S. C. White Leghorns of quality, prolific layers of large snow-white eggs; 15, \$1.50. VALLEY CITY POULTRY FARM, Rt. 12, Grand Rapids, Mich.

FOR SALE.—S. C. Black Orpingtons, the kind that lay, weigh, and pay. My pen is headed by Black Chief Junior. Eggs for hatching now booked, \$3.00 for 15.

C. L. COLE, Medina, Ohio.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.

CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Eggs that hatch big strong chicks from I. R. ducks, Houdans, Leghorns, Wyandottes, Minorcas, White Games, Orpingtons, \$1.50 per 15; \$2.75 per 30; \$4.00 per 45. Mating list.

BROOKSIDE FARM, Trimble, Ohio.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties, too. Per setting of 15, \$1.00. Satisfaction guaranteed.

W. O. ROUBABUSH, Hagerstown, Md.

Eggs from prize-winning single-comb Buff Orpingtons—2 special pens; Martz and Rogers strain, \$3.50 per 15; utility flock, free range, \$1.25 per 15; \$5.50 per 100. Also eggs from fawn and white Indian Runner ducks, scoring up to 94½; \$1.50 per 15; \$4.50 per 50. JAMES MCKENDRICK, Glenlussa Farm, Ernie, Iowa.

Famous Dumaresq Buttercups and stock. Send eggs to England, Cuba, Canada, and California, with good reports and safety. My matings are fine this year. Pens headed by "Dewey," blue-ribbon winner—first pen at Rochester; this year Toronto, second, and Palermo, second, all blue-ribbon winners. Testimonials of pullets laying in 124 days. Eggs for hatching. Send for circular.

MRS. J. S. DUMARESQ.
Cato's Hall, Rt. 5, Easton, Maryland.
Vice-president American Buttercup Club.

INDIAN RUNNER DUCKS

True Fawn and White Indian Runner ducks. Handsome and hardy, and the best of layers. I can start you with the best. Eggs, \$1.00 per 11.

H. C. LEE, Box 254, Brooksville, Ky.

Indian Runner duck eggs, 13 for \$1.00. Fawn and white, white-egg strain. Also Mammoth Black Bronze turkey eggs, 25 cts. per egg.
SARAH WIDRIG, Rt. 29, Burt, Niagara Co., N. Y.

Pure Spencer Strain White Indian Runner Ducks. Wonderful layers of large pure-white eggs. Write for prices of stock and eggs.

BREEZE HILL POULTRY FARM,
A. R. Williams, Prop., Rt. 4, Winchester, Ind.

Do you want eggs from the original Fawn and White Indian Runner ducks? Send \$1.25, and 15 pure-white eggs will be delivered to you in perfect hatching condition, by prepaid parcel post. S. C. R. I. Reds eggs the same price.

ROBT BIRD, Pinckneyville, Ill.

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large, pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.

C. O. YOST, Box D, Rt. 4, Winchester, Ind.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1. \$1.00.
A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913: beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

SECOND-HAND CANS.

We have a call for a carload of second-hand 60-lb. cans, which we recently offered, but we have some over a car, and can still supply a few hundred cases at \$3.50 for 10; \$7.50 for 25, or \$25.00 per 100. There are two cans to a case. They have screw caps, are free from rust inside, and boxes are repaired where needed, and in good condition.

BUCKWHEAT SEED.

We have a good stock of choice buckwheat for seed, both silverhull and Japanese. The season for sowing is rapidly approaching. Our price for seed, while present supply lasts, is 40 cts. per peck; 75 cts. for ½ bushel; \$1.25 per bushel; \$2.25 for two bushels, bag included in each case. If you plan to sow any, and are not provided with seed, you had better send your order while the seed is available.

LECTURES ON BEEKEEPING.

We have arranged to continue the lectures on our roof at 10 Vine St., Philadelphia, on Tuesdays and Fridays from 11 to 12 o'clock, during May and June. Tuesdays will be devoted to instructions for beginners, handling bees, taking swarms, preparing for the honey-flow, etc. Fridays will be for advanced beekeepers, the scientific side of the transformation of nectar, the formation of wax, with some instructions as to the bacteriological side of foul brood, its contagion etc. Kindly note that the hour is 11 to 12, on both Tuesday and Friday.

SWEET-CLOVER SEED.

We are now provided with a limited quantity of white-sweet-clover seed, both hulled and unhulled, which we offer, subject to previous sale, at the prices given in table below. We still have a fair supply of the yellow, both hulled and unhulled. We are sowing four acres of ground with the biennial yellow, and hope to be in position to report from experience as to the merits of this variety as compared with the white.

	Price in lots of	1 lb.	10 lbs	25	100
Melilotus alba, biennial....					
White sweet clover, hulled	32	\$3.00	\$7.25	\$28.00	
" " unhulled	22	2.00	4.75	18.00	
Melilotus officinalis, biennial					
Yellow sweet clover, hulled	28	2.60	6.25	24.00	
" " unhulled	21	1.90	4.50	17.00	
Annual yellow, hulled....	14	1.20	2.75	10.00	

Samples mailed free on request.

Kind Words from our Customers

Enclosed please find \$1.00, for which send me GLEANINGS for another year. I wouldn't miss a copy for any thing. In one of your recent numbers I read where a man in this State did not want a "journal devoted to how one man thought the world ought to be run," but I think it is devoted to the way the "majority of people want it to be run." I welcome your paper every two weeks, and am interested in the Home department.

Worcester, Mass.

GEORGE H. HOSMER.

A KIND WORD FROM FAR-OFF BRITISH COLUMBIA.

[We let the writer of the following story tell it in his own quaint phraseology.—A. I. R.]

Mr. A. I. Root:—This is first my letter to you. I am trying to write English. I am a foreigner.

I find we shall read what is good, and never shall we say in this world we have not time to read, and especially when we come to be of old age.

In your writing in GLEANINGS you are very severe on big able-bodied man abegging.

I been thinking what will replace you in your journal in your good Home talk when you be here no more, or when you come to die. In my own hearth you been always to me as model man. When young you first make a start by working for your daily bread; and now in your old age it is right for every man when he come to old age to be sure to belong to the Lord Jesus Christ.

I am now sure for Christ. I feel glad I find the Lord our God is with us; and he is too holy to be with sinners.

I am trying now every day to live righteous before him.

I am a reader of your journal, and can not write good English. I learn a little writing from reading, and reading I learn by myself. I keep bees now to make money, and I like bees much, I must say, for pleasure.

Elwina, B. C., Canada, Nov. 13.

H. KACER.

ESTABLISHED 1891

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan and Cherry Sts.**San Antonio, Texas**

Factory and Warehouse.

To Our Friends and Patrons

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as all those engaged in the business.

Owing to the constantly increasing demand for comb foundation and beekeepers' supplies, we have again been compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past year, our sales having aggregated approximately \$100,000.00.

Although it has been found a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the 5 $\frac{3}{8}$ -inch frames, same as described in our catalog, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the 10-frame hives..

Shortly before the death of Mr. Mayfield, Mr. Udo Toepperwein sold his interest to Messrs. R. W. Hearne and B. L. Raborn, well-known business men of San Antonio. The retirement of the older members of the company will in no way change the policies of the new management except to increase materially the capital with the view of carrying a large stock of supplies. Mr. Morris, who has been practically the manager of the Toepperwein & Mayfield Co., continues with the new management.

It is the intention of the new management to increase materially the capital of the company, with the view of carrying a stock of supplies that will meet all the requirements of the trade. This will enable us to effect prompt shipments at all times, and thus avoid any delay and annoyance to customers on account of shortage of stock.

It will be our endeavor to accord our customers all possible courtesies and consideration in any matters that may arise. Mistakes will occur at times, as is only natural, and we only ask that they be brought to our attention so that they may be rectified. Our customers may be assured of the best quality of goods at as reasonable prices as are consistent with business methods.

Our new catalog on request. Address

TOEPPERWEIN & MAYFIELD CO., - San Antonio, Texas.

ROOT'S BEEKEEPERS' SUPPLIES . . .

"You may have a catalog of supplies; but if you haven't ours you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Extensive and prosperous beekeepers are writing us frequently letters like the following:

The A. I. Root Co.:—We have bought bees almost every season for a great many years, and in this way handled several styles of frames; but to date we have not found any thing that compares with your metal-spaced frame for an all-round fixture.

For the benefit of students we have experimented with other styles of metal spacers, and in every case imperfections were soon discovered. Your metal-spaced frame has many good points to recommend it, and we began using this style of frame the first season it was put on the market, and have more than 20,000 of them in use now.

For strength and rapid manipulation, this frame has no equal. We use it alike in brood-chamber and extracting-supers, as with our plan of management a frame may be in the brood-chamber at one time and in the super at another, or the reverse may be true.

Janesville, Minn., March 8, 1913.

THE HOFMANN APIARIES, per E. L. Hofmann.

Our catalog also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

BRANCH OFFICES

New York, 139-141 Franklin St.	Chicago, 213-231 Institute Pl.
Philadelphia, 8-10 Vine St.	Des Moines, 565 W. 7th St.
St. Paul, 1024 Mississippi St.	Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W.	
Mechanic Falls, Maine	

Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory

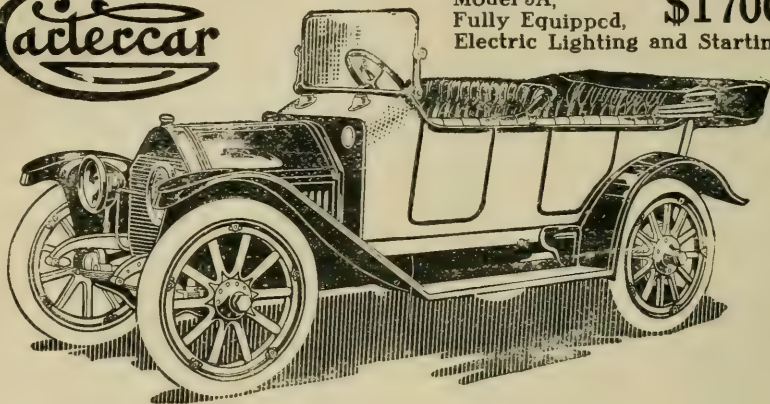
MEDINA, OHIO



Cartercar

Model 5A,
Fully Equipped,
Electric Lighting and Starting

\$1700



Take the Wheel Yourself

Don't be one of those fellows who always sits back and looks on. Who, when he sees a friend with his family out enjoying the many delights of a **CARTERCAR**, sighs and says, "How nice!"

Be a **DOER** yourself.

Don't let that nightmare of all prospective buyers—"After Cost"—keep you from getting all those pleasures.

If you only knew how seldom a **CARTERCAR** owner is forced to lay his machine up for repairs, how little cause he has to be concerned with the tire-upkeep problem because **Friction-transmission** lengthens their service, then you wouldn't hang back.

If you could see **CARTERCAR** owners repairing and adjusting their own cars with perfect satisfaction, you would then realize why the **GEARLESS-TRANSMISSION** car is in such demand.

If there was only some way of making you realize that all this talk about women driving the **CARTERCAR** without trouble is the truth, and that hill climbing and bad-roads touring are easy with a **CARTERCAR**, you would lose no time getting in line.

You admit that the price—\$1700 for a fully equipped Touring Car, and \$1600 for a Roadster—is reasonable enough; why then let a silly myth about the enormous cost of maintenance scare you away?

Look into the **CARTERCAR** from every angle and be sure that it is the one and only car for you.

Write for a New Catalog

Cartercar Company, Pontiac, Mich.

Branches: New York Chicago Kansas City Detroit Atlanta

MAY 19 1913

Agricultural
College

Gleanings in Bee Culture

VOL. XLI. MAY 15, 1913, NO. 10.

Gleanings in Bee Culture

One Year

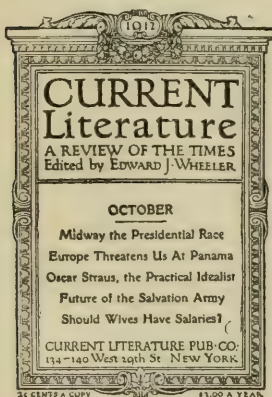
METROPOLITAN MAGAZINE (Three Months).—In 1913 the Metropolitan will contain W. W. Jacobs' funny stories; Arnold Bennett's Magazine articles; a series of stories, each complete in itself. Every issue has a color supplement, reproduced on heavy stock and ready for framing.



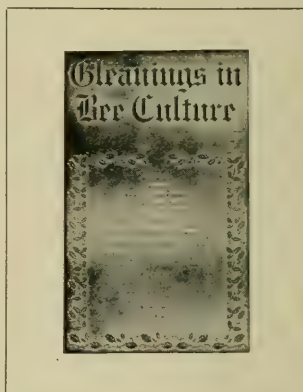
PICTORIAL REVIEW (Three Months).—The fashion pages of this magazine have won for it a circulation of over eight hundred thousand copies monthly. Its styles and patterns are famous the world over. Its special articles, stories, and household departments are timely, and furnish instructive reading for every woman.



HOUSE BEAUTIFUL (Three Months).—An illustrated magazine of practical interest filled with suggestions concerning home making, building, interior decorations, furnishing, and gardening.



CURRENT OPINION (Three Months).—Illustrated review of American Politics; Men and Women of the Hour; Progress in Science and Invention; Religious and Ethical Problems of the Day; News of the Art and Literary World; Great Questions of Finance and Industry. (This magazine was formerly CURRENT LITERATURE.)



Pictorial Review . . .	15 cents a copy . . .	3 copies . . .	\$.45
Metropolitan Magazine . . .	15 cents a copy . . .	3 copies . . .	.45
Current Opinion . . .	25 cents a copy . . .	3 copies . . .	.75
House Beautiful . . .	25 cents a copy . . .	3 copies . . .	.75
Gleanings in Bee Culture . . .	One year . . .	24 copies . . .	1.00
Total regular cost			\$3.40

OUR RATE for the Combination, \$1.50

Send Your Order for the Combination to

The A. I. Root Company, Medina, Ohio

RUSH-ORDER PRICE LIST

“FALCON” Beekeepers’ Supplies

Beeway Sections—	250, No. 1, \$1.60;	No. 2, \$1.40.	Plain Sections, 25c per 1000 less.
“	500, “	2.75; “	2.50.
“	1000, “	5.50; “	5.00.
“	5000, “	23.75; “	21.25.
Light Section Foundation, per pound			1 lb., 65c; 5 lbs., 64c; 50 lbs., 59c
Light Brood Foundation, per pound			1 lb., 58c; 5 lbs., 57c; 50 lbs., 52c
Hoffman Brood-frames,			10, 35c; 100, \$3.00
No. 14 one-story Dovetailed hive, cover, body, bottom, frames,	8-frame	1, \$1.50; 5, \$7.00; 10, \$13.50	
	10-frame	1.60 7.50 14.50	
Dovetailed Supers complete without sections and starters—			
No. 2, 4¼x1½ sections			8-frame: 5, \$2.50; 10, \$4.80
No. 2B, 4¼x1½ sections			10-frame: 5, 2.75; 10, 5.30
No. 2F, 4x5 sections			
Ideal Bee-veil, 65c; by mail, 75c			Standard Smoker, 85c; by mail, \$1.10
Untested Italian Queens, one, \$1.00; six, \$5.50.			Tested Queens, one, \$1.50; six, \$8.50

Red Catalog, Postpaid. “Simplified Beekeeping,” postpaid.

W. T. FALCONER MFG. CO., FALCONER, N. Y.
Where the good bee-hives come from

“Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time” Send for Annual Catalog which will tell
It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.



Established 1885

We carry an up-to-date line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

P-O-R-T-E-R

(TRADE MARK)



BEE ESCAPE

SAVES { TIME HONEY MONEY } AT ALL DEALERS

Each, 15c; Dozen, \$1.65, postpaid

If your dealer does not keep them, order from factory, with complete instructions.

R. & E. C. PORTER, Mfrs.
Box 7, LEWISTOWN, ILLINOIS, U. S. A.

DO YOU LOVE SWEETS?

RALPH WALDO EMERSON DID

He said you can attain to royalty by loving sweets.

“He who knows what SWEETS are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man.”

“HOW to come at these?”

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*.

Want to know how?

Send \$1.00 for a year's subscription to

The Guide to Nature

Arcadia, Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, “a bee-man” and a naturalist.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight, will be deducted; and in addition there is often a charge for storing by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—Fancy and No. 1 white comb, 16 to 17; fancy white, 11 to 12. Beeswax, 30.
Boston, May 6. **BLAKE-LEE CO.**

CHICAGO.—The honey market is nominal at this time, with unchanged condition from our last quotations.

Chicago, May 2. **R. A. BURNETT & CO.**

INDIANAPOLIS.—Market is now practically bare of fancy white comb honey. No. 1 white is selling at 16 to 17; amber comb is in slow demand, and at varied prices. Best extracted sells at from 11 to 12 in five-gallon cans, according to quantity. Beeswax is in good demand, and producers are being paid 30 cents cash or 32 in trade.

Indianapolis, May 5. **WALTER S. POUER.**

ST. LOUIS.—We have no change to report in our honey market. There is barely any demand for comb honey nor for extracted, and the quotations which we give are nominal. We quote fancy white comb honey at 16 to 17; No. 2 white at 15; light amber, 13 to 14; by the case, fancy white comb honey, \$3.65 to \$3.75; No. 2 white, \$3.25 to \$3.40; amber, \$2.75 to \$3.10, according to quality. Dark and broken honey are unsalable at any price, as there is no demand for such. Extracted honey, Southern, in barrels and half-barrels, choice light amber, brings 6½ cents; dark, 6; in five-gallon cans, one-half cent higher. This is only for the better grades, as dark honey is not wanted. California, Utah, and Colorado honey, white, brings 9 to 9½ cents. Light amber, 8½, all in five-gallon cans. Beeswax is in good demand at 31; inferior and impure sells for less.

St. Louis, May 2. **R. HARTMANN PRODUCE CO.**

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

Now, Then, for Your Early Bee-supply Orders!

Send us a list of the Bee Supplies you want.
Our prices will astonish you.
Also send us your old combs.
We will render your wax and save you money.
Write for particulars.

THE FRED W. MUTH CO.

"The Busy Bee Men"

204 Walnut Street

Cincinnati, Ohio

An Active Season is Here

A carload of perfectly new goods is just on hand from the factory, and another car is expected any day, and the factory has booked us for four cars. This brings up our assortment so that we can now furnish almost any thing listed in the catalog at once.

Hives should be ordered at once if they are to be ready for swarms. Frames, and other inside fixtures too, should be put together now.

If you are wanting any special goods, orders should be made at once. Other cars are coming regularly from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

The mailing of our new catalog was completed some time ago. If you are not on our mailing list send us a postal-card request for this catalog.

If you want to buy in quantities considerably larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder—the best in the market. Write for our catalog.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor.

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Ass't Editor.

J. T. CALVERT
Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice: otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of the A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE. E. Bondonneau, 120 Avenue Emile Zola.

Per year, postpaid, 8 francs.

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THE BEEKEEPERS' REVIEW

will be published hereafter at Northstar, Michigan, the new home of E. D. Townsend, so long known at Remus, Michigan.
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 Are you a subscriber? if not, why not? It is but \$1.00 a year, or the balance of the year for 50 cents. Sample copy free. Fifty cents more will pay your dues in the NATIONAL for a whole year.
 Don't delay. Send in your dollar to-day.
 E. D. TOWNSEND, WESLEY FOSTER, Editors. . . Address
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Miller's Strain of Red-clover ITALIAN QUEENS By Return Mail after June 5 to 15 or order returned

Bred from superior breeders for business; gentle; no better hustlers; bees roll honey in; three-banded; **Northern-bred**: hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored long-tongued red-clover strains. Untested, \$1.00, six, \$5.00; dozen, \$9.00. Select untested, \$1.25; six, \$6.00; dozen, \$11.00. Satisfaction guaranteed.

Isaac F. Miller, a queen specialist and breeder for sixteen years, previously of Brookville, Rt. 2, Reynoldsville, and lately of Oil City, Rt. 2, Pa., is agent and breeder for E. L. Miller. Send all orders to

I. F. MILLER, Rt. 2, Brookville, Pa.



ITALIAN BEES AND QUEENS

Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50.

J. L. FAJEN, . . STOVER, MISSOURI

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Superior winterers; descriptive list free. Bees by the pound. Untested, \$1.00; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c.
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The Safety, Convenience, and Profitableness of Banking by Mail are proved by the large and constantly increasing number of people who transact their banking business in this way.

The Savings Deposit Bank Company serves a great many people who live at long distances from Medina.

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This bank is under the strict supervision of the State Banking Department of Ohio, which assures its soundness.

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The SAVINGS DEPOSIT BANK COMPANY

Medina, Ohio

HAVE YOU SEEN IT?

. . THE . .

NEW American Bee Journal

IT PLEASES

FRIEND DADANT:—Say, do you folks know that the Old Reliable is just more than forging to the front?
 Yours truly,

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NEW Editor NEW Cover NEW Manager

Select Material

Illustrated

Free Sample Copy

\$1.00 a Year

C. P. DADANT

DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

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CIRCULATION 35,000.

Issued semi-monthly.

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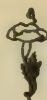
Typewriters

Oliver Typewriter Co. cover

Folks Like Michigan Comb Honey

However it is so scarce that they can not get any. It is a case of under-production. It will pay **YOU TO MAKE THIS YEAR A COMB-HONEY YEAR.** Pages 12 and 13 of our catalog show comb-honey outfits. They're Root's goods too. . . . Beeswax wanted.

M. H. HUNT & SON, LANSING, MICHIGAN
OPPOSITE LAKE SHORE DEPOT



We are booking orders for Italian bees by the pound, with or without queens. . . . Write for prices on quantity wanted.



FRUIT-GROWERS!

Send 10 names of fruit-growers and 10 cents, and get "The Southern Fruit Grower" four months. Tells all about fruit-growing, gardening, poultry-raising, etc., in the South. Contains from 32 to 40 pages each month. Address

THE SOUTHERN FRUIT GROWER
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Line-bred Carniolan Queens

Carniolans winter with their colonies most populous, build up fast in the spring, enter supers more readily, cap their honey very white, are gentler, and are no more inclined to swarm than Italians if properly managed.

Ask for our FREE paper, "Superiority of the Carniolan Bee," describing these bees more fully, and best management for comb and extracted honey.

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ALBERT G. HANN, PITTSBURGH, NEW JERSEY
Carniolan Queen Breeder

BEES AND SUPPLIES

You will soon need a bill of supplies. Let us quote you before placing your order. We please thousands, why not you? Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

Comb Honey Producers! Send for illustrated circular of new Rauchfuss Combined Section Press and Foundation Fastener. Sold with guarantee to give satisfaction, and delivered anywhere in U. S., on remittance of \$3.00.

The Colorado Honey Producers' Assn., Denver, Colo.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

PROMPTNESS, LOW FREIGHT, and BEST PRICES are our motto. Satisfaction guaranteed. Think of it! our large **THREE-STORY WAREHOUSE**, right in the heart of the **CITY**, only 5 city blocks from ten of the largest **TRUNK RAILROAD SYSTEMS** in the world, and each trying to beat the other in prompt deliveries, gives us service no other agent enjoys. Even the **FACTORY** itself can't give such railroad service. This, all coupled with practical beemen to handle orders, insures against errors in packing.

WE HANDLE ROOT'S GOODS EXCLUSIVELY, and our warehouse is loaded from cellar to garret. Delays here in waiting for goods to arrive are very infrequent. Write for **SPECIAL PRICES IN QUANTITIES**, sending us a list of your wants. Free catalog for the asking. **BEEWAX** always wanted.

CHICKEN FEED OF ALL KINDS, at jobbers' prices. Car a week.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.
"Griggs is always on the job."

"If Goods are wanted Quick, send to Pouder."



Bee Supplies Up to Date

EQUIPMENT.—Storeroom built expressly for the business; large concrete basement with just enough moisture to prevent breakage in sections and shrinkage in dovetailed corners of supers and hives. Electric lift brings up two tons of goods to first floor in thirty seconds for shipment. Does this appeal to you?

QUALITY.—Root goods at the factory schedule of prices, whether you require one hive or a hundred. This is the quality that I have handled for nearly a quarter of a century, and the kind that you can recommend to your visiting neighbors. I MIGHT have increased my profits for a SHORT TIME by handling other goods, but I would not have remained so long in the business.

GUARANTEE.—Many articles described in my catalog can now reach you by parcel post, and I assume all responsibility in safe arrival of goods. I have the very finest tight-seal glassware for putting up extracted honey, and I guarantee safe arrival—no breakage at purchaser's loss. I have waxed-paper honey-jars that are a decided success wherever they have been used.

MY CATALOG.—My catalog describes all of these things, and contains valuable information for those who are interested. I shall be pleased to show you how promptly I can get one into your hands if you will drop me a card.

BEE SWAX.—Remember me when you have wax to offer, cash or trade, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue

Notice to Beekeepers

Though my stock suffered severe injury in the flood, I shall be able to continue in business. A carload of brand-new goods is on the way, the railroads are again accepting and delivering freight, and you need not hesitate to send your orders here. Any thing temporarily out of stock will be sent direct from the factory where such orders will receive preferred attention.

My new location, in the Airdome building on South Sixth Street, is even more accessible than the old, and affords improved facilities for the prompt handling of orders.

The damaged stock here has been disposed of with the exception of a few odds and ends. I have been too busy to compile a list, but if you will name any item you can use in slightly damaged ware, it will be supplied if possible.

I take this opportunity to express my appreciation of the liberal patronage accorded me hitherto, and of the many kind expressions of sympathy from my friends.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

BEEKEEPERS

Your busy season is close at hand. Get wise, and place your orders with the supply dealer who will save you money and serve you best with Root's quality sections, frames, foundation, smokers, extractors, etc. I can serve you now without delay. My 1913 catalog tells you all about these things; besides, it contains a lot of information to those interested in bees. Special attention given to the breeding of three-banded Italian bees and queens. Catalog free.

EARL M. NICHOLS

Lyonsville, Massachusetts

Pure Golden Italian Queens

Better than Last Year

Mated, \$1.00; select mated, \$1.50; select tested, \$3.00; breeders as high as \$50.00. Send for booklet and get the best. My breeders produced over 200 pounds of surplus each last year. Try them and see what they will do for you.

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25
YEARS'
PRACTICE

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Patent Counsel of The A. I. Root Co

Boston is the Shipping Center of New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

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182 Friend Street

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New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for discounts—we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

Beekeepers!

If You Have Dwindling Colonies

send a postal for price list on young Italian bees by the pound, with or without queen. No DISEASE. IT WILL PAY YOU TO INQUIRE AT ONCE. Satisfaction guaranteed. Reference by special permission, First National Bank of Pomona, Calif. Address 475 W. Center St. J. M. STRIPSKEY, Pomona, Cal.

Bees, Queens, Orange Honey

Our HAND-MOORE STRAIN

3-BAND ITALIANS

Are the best honey-gatherers. They spoil our white-clover honey by mixing it with red-clover. Record tongue reach 23-100 of an inch. Breed strictly for business. Untested, 75c; 12 for \$8.00; 50 for \$25.00.

LATSHAW HONEY COMPANY
CARLISLE, INDIANA

LEWIS HIVES ARE BUILT LIKE FURNITURE
ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

Bees by the Pound

**Safe arrival guaranteed to any point
within five days from Medina, Ohio.**

We have finally perfected our pound packages so that we are now able to ship bees without combs to almost any point in the United States and nearby points in Canada without danger of transmitting bee disease of any sort. Half a pound of bees is nearly the equivalent of a two-frame nucleus; one pound, to three frames; two pounds, to six frames; three pounds, to an ordinary colony such as may be sent by express. The express on these pound packages is only about a quarter of the express on the equivalent value of bees when they are sent on combs. We shall be ready to ship bees in pound lots from Medina, with 600 colonies to draw from, by the first of June, at the following prices, without queens: Half-pound package, \$2.00; pound package, \$3.00; two-pound package, \$5.00; three-pound package, \$6.00.

Through July, and on throughout the season, the prices without queens will rule as follows: Half-pound package, \$1.00; pound package, \$1.50; two-pound package, \$2.50; three-pound package, \$3.00.

If you want queens with the pound packages, add the price of the queen selected to the price of the bees.

Express on half a pound of bees with queen, within 300 miles of Medina, will be approximately: One pound, 38 cts.; two pounds, 45 cts.; three pounds, 57 cts.

NOTE.—We can not ship bees by parcel post other than a queen-bee and a dozen or so attendants.

We have so perfected our cages for shipping bees in pound lots that we now feel for the first time that we can guarantee safe arrival at the prices named above, where bees are not on the road more than five days. As a general thing they will go through in good condition, even when out more than six days; but for the present, at least, we do not feel like assuming a greater limit than five days. Our guarantee means that, if bees fail to go through alive, or if they go through in bad order, we will either replace the shipment or send enough more bees to make up for the loss at our own expense, or refund the money. Orders will be filled in rotation after the first of June. Send in your orders now, and thus insure early delivery.

In addition we guarantee to give full measure of bees by weight. Half a pound will contain from 2200 to 2500 bees, and larger packages in proportion.

PRICES OF QUEENS.

Untested.....	June, \$1.50;	July to October, \$1.00.
Select untested.....	June, 1.75;	July to October, 1.25.
Tested.....	June, 2.50;	July to October, 2.00.
Select tested.....	June, 3.50;	July to October, 3.00.

Untested Home-bred Queens in Quantity Lots in August and September.—During August and September we are prepared to name very low prices on large quantities for requeening. Prices depend on supply available, and quoted on application.

Send all orders to the home office of The A. I. Root Co., Medina, Ohio. Orders from the extreme South will be filled from Florida and Texas; those in the extreme West, from California.

N. B.—To get the price of a package of bees and a queen, add the price of the queen selected to the price of the package.

"QUEENS"

... FROM ...

The Penn Company,
of Penn, Lowndes
County, Mississippi

"GOLDEN" and "THREE- BANDED" ITALIAN QUEENS

Unsurpassed for Gentleness and
Working Qualities, and World
Beaters as Honey Gatherers.

Queen Circular on request
by Return Mail

The Penn Co., Penn, Miss.

ATTENTION!

Very important to all beekeepers all over the world who
desire to improve their native or mixed strains of bees!

THE DIRECT EXPORTATION FROM CARNIOLA OF THE
GRAY-BANDED ALPINE BEE, which until now was conducted
by the Imperial Royal Agricultural Ass'n of Carniola, the
undersigned will, IN THE FUTURE, MANAGE ON HIS OWN
ACCOUNT.

JOHANN STYGAR, Wittnach,

P. O. Wocheiner Feistritz, Upper Carniola (Krain), Austria.
Owner of 58 Honors awarded to him at various apicultural
exhibitions for his achievements as a breeder of the best
strain of Carniolans and producer of apicultural products.

ALL QUEENS TAKEN FROM FULL COLONIES, AND NOT
OVER ONE YEAR OLD. Mailed postage free. Dead select
tested queens will be replaced if returned in 24 hours after
arrival, except when they arrive in such a state in South
America or Australia. Dead select untested queens can not be
replaced. Send remittance per Intern. Money Order with
order. Safe arrival of nuclei and hives not guaranteed. Or-
ders of this kind must be accompanied by freight expenses.
The safest transport of stock is in Carniolan box hives. After
arrival or later the combs can be cut out to fit any frame.
Prices of select tested queens: March, April, May, \$5.00; June,
July, Aug., Sept., Oct., \$3.50. Select untested queens: June,
July, Aug., \$2.00. Carniolan box hives with 4 to 5 lbs. of bees,
select tested queen, brood, combs, honey, \$7.00, on board R. R.
station Wocheiner Feistritz. Write English for complete Price
List and new Booklet (which will be mailed postage free)
under above address.

CO-OPERATION means buying right and selling right.
We are a co-operative association,
and sell the best bee-supplies obtainable at the right
prices. It will pay Western beekeepers to send for our
illustrated catalog.

The Colorado Honey Producers' Assn., Denver, Colo.

PHARR'S QUEENS.

We desire to thank our former patrons, and ask that,
when you are in need of Golden or three-banded Ital-
ians, you send your order to us and receive fair treat-
ment. Tested, \$1.50; untested, \$1.00. For prices on
large quantities write us. . . Breeders, \$3.00 to \$5.00.

New Century Queen Rearing Co.
Berclair, Texas

QUEENS AND BEES

An improved superior strain of Italians is what
QUIRIN RAISES. Our stock is Northern bred and
hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis.,
and July 20th (of same year) he wrote us saying they
did just splendid, as at that date they had already filled
their supers, and that he would have to extract them.
We have files of similar testimonials.

Prices before July:	1	6	12
Select queens	\$ 1 00	\$ 5 00	\$ 9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00		
Golden breeders	6 00		
Two-comb nuclei, no queen ..	2 50	14 00	25 00
Three-comb nuclei, no queen ..	3 50	20 00	35 00
Colonies on 8-frames, no queen	6 00	30 00	
One pound bees, no queen ..	2 00	10 00	
Half pound bees, no queen	1 50	7 00	

Add price of queen wanted with bees. Bees by the
pound, nuclei, and colonies; if wanted before June 1,
add 25 per cent. QUEENS NOW READY. Safe delivery
and pure mating guaranteed. Over 50 years a breeder.
Testimonials and circular free.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO

W. H. LAWS

is again ready to fill your orders for
queens the present season. Law's Red-
clover Italians are as good as can be had.

One firm who bought over 1100 queens
from me in 1912 says, "Your queens are
very satisfactory." We are booking or-
ders now, and we are going to do our
level best to mail all queens by return
mail when so ordered. My bees are abso-
lutely clean and free from all disease.

Queens sent out under the usual guaran-
tees. Prices: Single queen, \$1; six for \$5.
Breeding queens, none better, each, \$5.

W. H. LAWS, BEEVILLE, BEE COUNTY, TEXAS

Taylor's Three-banded Italian Queens

are now Ready to go by Return Mail

We have hundreds of fine testimonials about
our queens. Untested, \$1.00 each or \$9.00 a doz.
Tested, \$1.25 each or \$14.00 a doz. Select tested,
\$1.50 each or \$16.00 a doz. Breeders, the very
best, from \$3.00 to \$5.00 each. No better queens
raised. Send all orders to

J. W. Taylor & Son, Beeville, Texas

FAMOUS QUEENS . . . DIRECT FROM ITALY

Bees more beautiful, more gentle, more industrious; the best
honey-gatherers. Universal Exposition, St. Louis,
Mo., 1904, the highest award. . . Extra breeding
queen, \$3.00; selected, \$2.00; fertilized, \$1.50. Write

ANTHONY BIACCHI, Pedevilla near Bollinzona, Italy

SPRING IS HERE

and the bees are flying, breeding, and increasing in strength. . . Swarming will soon take place. . . Are you prepared for the increase? . . Be forehanded, and have your hives all ready. . . We carry a large line of hives and other goods. Our catalog for 1913 will be sent you on request.



THE A. I. ROOT CO., SYRACUSE, N. Y.

. . . ROOT'S . . .

POWER HONEY - EXTRACTORS

Our new catalog is full of information about these labor-saving machines. With the difficulty of getting competent help, the power extractors are being sold largely in this and foreign countries, and the present demand is far greater than ever before. Read what a California producer says in a letter to a disinterested party, which we are permitted to see and publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root Automatic extractor, as I believe it is as near perfection as can be. This machine runs so easy that a few turns to get it up to speed is all that is necessary; and the men, while using the No. 17, which I formerly had, could average only 1000 lbs. per day, while with this machine they can average 2000 lbs. with but one additional man. No apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, and financially to the honey-producers' interests.

Elk Grove, Cal.

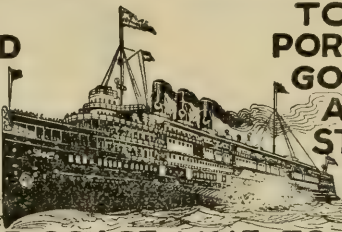
B. B. HOGABOOM.

For full particulars see our new catalog

THE A. I. ROOT COMPANY, MEDINA, OHIO

New York, 139-141 Franklin St. Chicago, 213-231 Institute Place Philadelphia, 8-10 Vine St.
Des Moines, 565 W. 7th St. St. Paul, 1024 Mississippi St. Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W. Mechanic Falls, Maine
Distributing Depots in many large centers

DETROIT
CLEVELAND
BUFFALO
NIAGARA
FALLS



TOLEDO
PORT HURON
GODERICH
ALPENA
ST. IGNACE

THE COAST LINE TO
MACKINAC

THE CHARMS OF OUR SUMMER SEAS

Spend your vacation on the Great Lakes, the most economical and enjoyable outing in America

Where You Can Go

No matter to what point you want to go, use D. & C. Line Steamers operating to all important ports. Daily service between Detroit and Buffalo, May 1st to November 1st. City of Detroit III and City of Cleveland III, two of the largest side wheel steamers in the world, on this division June 10th to September 10th. Daily service between Detroit and Cleveland April 15th to December 1st. During July and August two boats out of Detroit and Cleveland every Saturday and Sunday night.

Four trips weekly between Toledo, Detroit, Mackinac Island and way ports. Ten Day Stopover allowed at Alpena either direction on tourist tickets without additional cost. Daily service between Toledo, Cleveland and Put-in-Bay.

Special Steamer Cleveland to Mackinac Island, two trips weekly, June 15th to September 10th stopping only at Detroit every trip and Goderich, Ont., every Monday up-bound and Saturday down-bound.

Special Day Trips between Detroit and Cleveland, During July and August Tuesday, Wednesday, Thursday and Saturday out of Detroit; Monday, Wednesday, Thursday and Friday out of Cleveland.

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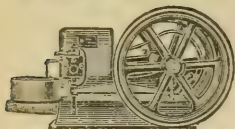
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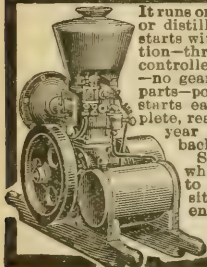
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Spanish-needle honey, blended; quality the finest; 60-lb. tins, or liquefied in pails of any size.

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WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 173 So. Water St., Chicago.

WANTED.—Comb, extracted honey and beeswax. Write us. HILDRETH & SEGELKEN, New York.

We will pay the highest cash price for thoroughly ripened extracted honey. Write us, stating quality and quantity, with prices F. O. B. your station.

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A full line of Root's goods at Root's prices.

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FOR SALE.—New and used bee supplies cheap, to close out.

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FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case.

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Several thousand 4¼ x 1¼ wide beeway sections; a bargain. Also a new super-foundational mill. Write.

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Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.

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Bee supplies for all southern Idaho and east Oregon beekeepers, wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest.

C. E. SHRIVER, Boise, Idaho.

FOR SALE.—One Root 6-in. thin-section foundational machine, used but little. One large tin can with copper bottom for melting wax. One large pail with strainer for melting comb with steam. Two dipping-cans and boards, all in good condition. Price for all, \$12.

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FOR SALE.—90 ten-frame hives, 75 cts. each; 50 ten-frame 7½-inch ext. supers, 35 cts. each. Above are all dovetailed Root make. 300 all-wood frames, ½-inch top-bars, \$2.00 per 100; new, not nailed.

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1000 fence separators and section-holders for 4 x 5 sections; 800 slotted section-holders and slotted wood separators for 4¼ x 4¼ sections at one-half factory price. Good as new; no disease.

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FOR SALE.—Wool-carding machine; will trade for lumber. CHAS. PARKER, Morris, Tioga Co., Pa.

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WANTED.—Half-pound packages of bees for 15 prize-winning S. C. Black Minorca eggs, or \$1.00.

J. G. BURTIS, Marietta, N. Y.

WANTED.—To hear from owner who has a good farm for sale. Send description and price. NORTH-WESTERN BUSINESS AGENCY, Minneapolis, Minn.

WANTED.—To exchange a \$75 Emerson typewriter for bees or money. Write me at once.

VERN O. DERBY, Wileyville, W. Va.

WANTED.—To exchange No. 4 Underwood typewriter, good as new, for Langstroth hives or bees (by the pound or colony).

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Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia.

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Bee-ranch in south Texas for sale. Just out of city limits of San Marcos, a splendid location for an apiary or poultry-ranch—no bees near; splendid bee-range. Good market for all kinds of produce; nice modern cottage. One of the most healthful locations in Texas. If interested, address

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Golden Italian queens, untested, \$1.20, after June 15.
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FOR SALE.—50 to 300 colonies, eight-frame, good condition.
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FOR SALE.—20 full colonies of pure Italian bees, in eight-frame dovetailed hives with Hoffman frames. Young queens.
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Dead beekeepers' heirs fearing bees can sell to FRANK ALLEN, Phillipsburg, Quebec, who comes, packs, and ships them.

Virgin queens, from select tested stock, Italian or Carniolan, 40 cts. each, \$3.50 per dozen.
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Virginia three-banded Italian queens, untested, 75 cts.; tested, \$1.00. All dead queens replaced free. Ready May 15.
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Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address
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Italian queens, untested, \$1.00; tested, \$1.50; breeder queens, \$5.00 each; two-frame nuclei, with untested queen, \$3.00; three-frame, \$4.00.
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FOR SALE.—Italian queens now ready; safe arrival and pure mating guaranteed. Select untested, \$1.00 each. All orders will receive our prompt attention.
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Day-old virgin queens will please you. Good way to get fine Italian stock at low price; 50 cts. each; \$5.00 per doz. Get my prices on full colonies.
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California Italian queens, fine honey-gatherers; gentle, none better. Select untested, 75 cts.; tested, \$1.00. Full colonies in neat modern hives reasonable.
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Golden Italian queens of best strain, all cells built in strong colonies, no foul brood or other disease. Untested, \$1.00; tested, \$1.50. Cash with order. Booking orders now.
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Do you wish to be treated right? Then send your orders for untested three-banded Italian queens to us—75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival, and the Golden Rule for all customers.
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Phelps' Goldenes combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.
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I shall requeen all my colonies this spring, and will sell all one-year-old queens at 40 cts. apiece; \$4.00 per dozen; untested Italians, 60 cts. each; \$5.00 per dozen; no disease. Safe arrival guaranteed.
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Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

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Montana queens, bred in the Musselshell Valley. No other bees within 60 miles; foul brood unknown; all queen candy boiled. Three-banded Italian queens, ready June 1. Untested, \$1.00; tested, \$1.50. Orders booked now.
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Fine tested and select tested queens of last season's rearing. Gentle three-banded stock that will increase your honey crop. Tested queens, \$2.00 each; select, \$2.50. Untested queens, same stock, after May 20, \$1.00 each; 12 for \$9.00.
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Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 2 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed.
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The two B's of quality. Italian bees and Sicilian Buttercups. For all that is best, unexcelled. Untested queens, \$1.00 each, six for \$5.00. Buttercup eggs from prize-winning pen, 15 for \$4.00; "A" pen, 15 for \$2.50; 30 for \$4.00.

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168 colonies of bees for sale, located in the melilotus and alfalfa belt of northeast Mississippi. With an average honey season will yield a revenue of \$1200 to \$1500. The price for quick sale is \$600 cash. For further information write
MAER-STANLEY REALTY CO., Columbus, Miss.

FOR SALE.—Guaranteed purely mated three-banded Italian queens. I recommend four points—gentle, prolific, extra good honey-makers, good winterers. J. E. Hand strain. State inspector's certificate. Queens by return mail or your money back. Select untested, 85 cts. J. M. GINGERICH, Rt. 3, Arthur, Ill.

Queens by return mail. Three-banded Italians only; bees that are bred for business; gentle, and the best of honey-gatherers. Queens large and prolific; try them. No disease, and satisfaction guaranteed. Tested queens, \$1.00; \$12.00 per dozen. Untested, single queen, \$1.00; \$9.00 per dozen.
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FOR SALE.—Swarms! Swarms! $\frac{1}{2}$ lb. young bees with untested Italian queens, shipped as $1\frac{1}{2}$ lbs., \$1.75; 1 lb. young bees with untested Italian queen, shipped as $2\frac{1}{2}$ lbs., \$2.25, F. O. B. here; 6, 10 cts. less each. This is the best way to increase and improve your bees. Safe arrival and satisfaction guaranteed. Circular free.

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Murray's famous North Carolina bred Italian queens (red clovers) for sale again. As good as the best; no foul brood. They are as good honey-gatherers as can be obtained, and as gentle, and winter as well. Select untested, \$9 per doz.; untested, \$8 per doz.; tested, \$1.25; select tested, \$1.50; extra select tested, \$2; breeders, \$3 and \$5.

H. B. MURRAY, Queen-breeder, Liberty, N. C.

FOR SALE.—Three-banded Italian queens and packages. Best honey-gatherers. Satisfaction or your money back. No disease. Ready about April 1. One untested queen, 75 cts.; 6 for \$4.25; 12 for \$8.00. After April 15, $\frac{1}{2}$ lb. bees, \$1.00; 1 lb., \$1.50; good weight; 1 o. b. here by express. Add price of queens if wanted. These are young bees, so will live longer than those you have wintered.

W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

There is a key to all business; and the key to successful honey-production is "good" queens. We have them, and know how to raise them. Thirty-five years' experience. Three-banded Italians. 75 cts. each; \$4.25 for 6; \$8.00 per dozen. Safe arrival and satisfaction to everybody. We handle successfully the orders of the largest producers.

THE RIALTO HONEY CO., Rialto, Cal.

FOR SALE.— $\frac{1}{2}$ lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen to each package Italian or Carniolan, \$1.00.

Rosedale Apiaries,
J. B. MARSHALL, Big Bend, La.

We will requeen our 2000 colonies this year with young queens bred from our best home and imported Italian stock. We offer the prolific year-old queens, removed from these hives, at 40 cts. each, \$4.20 per dozen; \$30.00 per 100. Untested queens, this year's rearing, 60 cts. each; \$6.50 per dozen; \$50 per 100. We breed for business, not looks. No disease; delivery guaranteed.

SPENCER APIARIES Co., Nordhoff, Cal.

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WANTED.—Assistant beekeeper. State age, experience, and wages; 6 months' season.

THE ROCKY MOUNTAIN BEE Co., Forsyth, Mont.

POSITION WANTED

Thoroughly experienced man wants work in apiculture; \$60 per month and board. D. A. DAVIS,
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Seed potatoes, 10 kinds, \$1.00 by express.

W. SHRINER, Hector, N. Y.

FOR SALE.—Maine-raised Angora kittens, all colors. C. B. LIBBY, Box 145, Freeport, Maine.

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

FOR SALE.—I. H. C. auto truck, used one season; in good repair; \$275, f. o. b.

F. W. LESSER, East Syracuse, N. Y.

FOR SALE.—One Marsh Metz motorcycle in good running order, only \$55. Also one brand-new $\frac{3}{4}$ H. P. gasoline-engine, \$20. J. L. FREEMAN,
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Buff Orpingtons, Buff Leghorns, Anconas.
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Rose Comb Black Minorca Eggs—15 for \$1.00.
LEE GIDLEY, Morgantown, W. Va.

Sicilian Buttercups. Best of all. Eggs for hatching. Mating list free. D. S. DURALL, Hurdland, Mo.

Sicilian Buttercups. The most persistent layers and non-sitting variety. Eggs, \$1.50 and \$3.00 per 15.
WALTER M. ADEMA, Berlin, Mich.

S. C. Brown Leghorns, day-old chicks, \$3 per 25; \$11 per 100; stock and eggs, none better. Booklet free.
H. M. MOYER, Rt. 2, Bechtelsville, Pa.

S. C. White Leghorns of quality, prolific layers of large snow-white eggs; 15, \$1.50. VALLEY CITY POULTRY FARM, Rt. 12, Grand Rapids, Mich.

FOR SALE.—S. C. Black Orpingtons, the kind that lay, weigh, and pay. My pen is headed by Black Chief Junior. Eggs for hatching now booked, \$3.00 for 15.
C. L. COLE, Medina, Ohio.

Standard-bred heavy-laying Barred Rocks, S. C. Rhode Island Reds; stock of highest quality for sale. Send for catalog. Do it now.

CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

Eggs that hatch big strong chicks from I. R. ducks, Houdans, Leghorns, Wyandottes, Minorcas, White Games, Orpingtons, \$1.50 per 15; \$2.75 per 30; \$4.00 per 45. Mating list.

BROOKSIDE FARM, Trimble, Ohio.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties, too. Per setting of 15, \$1.00. Satisfaction guaranteed.

W. O. ROUDABUSH, Hagerstown, Md.

Eggs from prize-winning single-comb Buff Orpingtons—2 special pens; Martz and Rogers strain, \$3.50 per 15; utility flock, free range, \$1.25 per 15; \$5.50 per 100. Also eggs from fawn and white Indian Runner ducks, scoring up to 94 $\frac{1}{2}$; \$1.50 per 13; \$4.50 per 50. JAMES MCKENDRICK,
Glenlussa Farm, Ernie, Iowa.

INDIAN RUNNER DUCKS

True Fawn and White Indian Runner ducks. Handsome and hardy, and the best of layers. I can start you with the best. Eggs, \$1.00 per 11.

H. C. LEE, Box 254, Brooksville, Ky.

Indian Runner duck eggs, 13 for \$1.00. Fawn and white, white-egg strain. Also Mammoth Black Bronze turkey eggs, 25 cts. per egg.
SARAH WIDRIG, Rt. 29, Burt, Niagara Co., N. Y.

Do you want eggs from the original Fawn and White Indian Runner ducks? Send \$1.25, and 15 pure-white eggs will be delivered to you in perfect hatching condition, by prepaid parcel post. S. C. R. I. Reds eggs the same price.

ROBT BIRD, Pinckneyville, Ill.

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large, pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.

C. O. YOST, Box D, Rt. 4, Winchester, Ind.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN THE QUEEN-BREEDER, Bellevue, Ohio.

GET TOP NOTCH PRICES **BY** USING LEWIS SECTIONS
FOR YOUR HONEY AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

SPECIAL NOTICES

By OUR BUSINESS MANAGER

SECOND-HAND CANS.

We have for sale a carload or more of second-hand 60-lb. cans, which we can supply at \$3.50 for 10; \$7.50 for 25, or \$25.00 per 100. There are two cans to a case. They have screw caps, are free from rust inside, and boxes are repaired where needed, and in good condition. A bargain to use for honey used in the baking trade.

BUCKWHEAT SEED.

We have a good stock of choice buckwheat for seed, both silverhull and Japanese. The season for sowing is rapidly approaching. Our price for seed, while present supply lasts, is 40 cts. per peck; 75 cts. for $\frac{1}{2}$ bushel; \$1.25 per bushel; \$2.25 for two bushels, bag included in each case. If you plan to sow any, and are not provided with seed, you had better send your order while the seed is available.

LECTURES ON BEEKEEPING.

We have arranged to continue the lectures on our roof at 10 Vine St., Philadelphia, on Tuesdays and Fridays from 11 to 12 o'clock, during May and June. Tuesdays will be devoted to instructions for beginners, handling bees, taking swarms, preparing for the honey-flow, etc. Fridays will be for advanced beekeepers, the scientific side of the transformation of nectar, the formation of wax, with some instructions as to the bacteriological side of foul brood, its contagion, etc. Kindly note that the hour is 11 to 12, on both Tuesday and Friday.

SWEET-CLOVER SEED.

We are now provided with a limited quantity of white-sweet-clover seed, both hulled and unhulled, which we offer, subject to previous sale, at the prices given in table below. We still have a fair supply of the yellow, both hulled and unhulled. We are sowing four acres of ground with the biennial yellow, and hope to be in position to report from experience as to the merits of this variety as compared with the white.

Price in lots of	1 lb.	10 lb.	25 lb.	100 lb.
Melilotus alba, biennial..				
White sweet clover, hulled	32	\$3.00	\$7.25	\$28.00
unhulled	22	2.00	4.75	18.00
Melilotus officinalis, biennial				
Yellow sweet clover, hulled	28	2.60	6.25	24.00
unhulled	21	1.90	4.50	17.00
Annual yellow, hulled....	14	1.20	2.75	10.00

Samples mailed free on request.

SWEET CLOVER AND ALFALFA MIXED.

We have just received a shipment of seed from California, which we bought for hulled white sweet clover. The U. S. government seed expert pronounces it 28 per cent white sweet clover and about 72 per cent alfalfa, with a few weed seeds in it. We offer it for 20 cts. per lb.; \$1.80 for 10 lbs.; \$16.80 per 100 lbs., bags included. We shall be pleased to submit samples if interested.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0121, $2\frac{1}{2} \times 10$ -inch heavy hexagonal brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price \$8.00.

No. 0139, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0153, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, $2\frac{1}{2} \times 6$ extra-thin-super mill, fair. Price \$10.00.

No. 0157, $2\frac{1}{2} \times 6$ thin-super mill, in good condition. Price \$12.00.

No. 0160, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in good condition. Price \$12.00.

No. 0165, $2\frac{1}{2} \times 6$ hexagonal extra-thin-super mill, in fair condition. Price \$11.00.

No. 0166, $2\frac{1}{2} \times 6$ hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0167, $2\frac{1}{2} \times 6$ hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0176, $2\frac{1}{2} \times 6$ extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0182, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, very good condition. Price \$20.00.

No. 0183, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, very good condition. Price \$14.00.

No. 187, 2×10 round-cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0188, 2×10 round-cell medium-brood mill, in good condition. Price \$14.00.

No. 0191, 2×10 round-cell Pelham mill in good condition for this kind of mill. The bases of the cells are not natural shape, but the walls are regular. Price \$7.00. Sample mailed free if interested.

No. 0204, 2×10 round cell medium brood mill, very good. Price \$15.00.

SPECIAL NOTICES

A. I. ROOT

SPRAYING AND SPRAYING MACHINERY, ETC.

I am just reminded that in my write-ups of the big crops of celery and tomatoes that are grown down near my Florida home I neglected to mention the importance of spraying. Once in a while somebody comes down from the North and undertakes to grow celery as it is generally done up here, paying little or no attention to proper spraying at the proper time, and when his crop all of a sudden goes to pieces from blight or something of that sort he goes back on Florida. Every truck-grower provides himself with a good apparatus—or at least the successful ones do—and the matter is attended to promptly. If I am correct about it, neighbor Root sprays even his strawberries—of course before the fruit is formed. I confess I am not very well posted about recent developments in spraying here in the North; but I believe that first-class apples that sell at gilt-edged prices are out of the question unless the spraying is attended to at the proper time and in the proper manner. You may recall that, when I made a visit to that big fruit-orchard in New Jersey, belonging to the Repp Bros., they challenged me to find a wormy apple in their hundred acres or more. I thought that surely some of the apples on the ground would show wormy cores, and I examined such apples in different places, but I did not find a wormy one. The good prices they get for their fruit is with the understanding that they never sell a wormy apple. The experiment stations of the different States are sending out bulletins; and the Department of Agriculture at Washington also furnishes information free of charge. Our advertisers, The E. C. Brown Co., Rochester, N. Y., also furnish a free book on spraying. You had better get it and become posted if you are not already.

Inclosed find \$3.00 for A B C and X Y Z of Bee Culture, and pay for GLEANINGS for the next year. Don't ever stop it, as I think a lot of GLEANINGS; and may God bless Mr. Root.

Eureka, Cal., April 2.

F. R. BAESE.

LEWIS BEEWARE MEANS

GOOD QUALITY, SCIENTIFIC WORKMANSHIP
CAREFUL PACKING
EFFICIENT SERVICE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

SPECIAL SALE!

Root's Goods Below Our Cost

Beekeepers will change their minds and use different kinds of supers all of a sudden. Our trade used, before section-supers, shipping cases, etc., while now nearly every beekeeper in our locality produces bulk comb honey, which, consequently, leaves us with a big stock of section supers on hand, which we are willing to sell very cheap just to dispose of them. They are all in the original packages, just as we received them from the factory, and there is absolutely nothing the matter with them, only we have hardly any more sale for them in our locality.

70 2 I-8.....	.37 each	60 2 P-8.....	.37 each
25 4 I-8.....	.50 each	100 4 I-10.....	.55 each
65 4 S-8.....	.50 each	80 2 I-10.....	.40 each
40 2 S-8.....	.37 each	35 4 S-10.....	.55 each
40 4 P-8.....	.50 each	75 2 S-10.....	.45 each
10,000 4 x 5 x 1 $\frac{3}{8}$ plain sections, 100 for .55; 300 for \$2.00; 1000 for \$3.70.			

SHIPPING-CASES

	With glass, in lots of 10	100
150 24-lb. regular 4-row for 4 $\frac{1}{4}$ x 1 $\frac{1}{2}$ sections.....	\$1.30	\$12.50
150 12-lb. regular 3-row for 4 $\frac{1}{4}$ x 1 $\frac{7}{8}$ sections.....	.90	8.50
150 12-lb. regular 3-row for 4 $\frac{1}{4}$ x 1 $\frac{1}{2}$ sections.....	.85	8.00
100 24-lb. regular 4-row for 4 x 5 x 1 $\frac{3}{8}$ sections.....	1.20	11.50
150 12-lb. regular 3-row for 4 x 5 x 1 $\frac{3}{8}$ sections.....	.90	8.50

HONEY-CANS

As in previous seasons, we have prepared a very large and complete stock of honey-cans in our warehouse, ready for immediate shipment to you. Our honey-cans this season are the product of the largest independent can-manufacturing company in the United States, and are warranted to be the best grade possible to procure. Every can and case is fully guaranteed to give absolute satisfaction. The boxes are of the very best material that can be obtained for packing honey-cans, being strong and substantial, and securely nailed with cement-coated nails.

Prices quoted on application. Full line of Root's Beekeepers' Supplies always on hand.

Toepperwein & Mayfield Co.

San Antonio, Texas

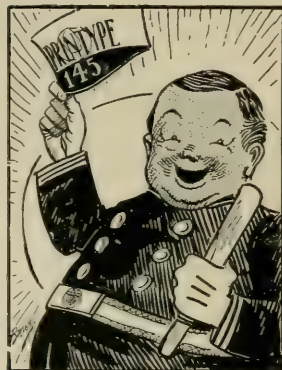
PRINTYPE

Receives the Plaudits of the Public

Vigilant Protector of People's Eyesight Hailed as a Benefactor by Many Thousands of Enthusiastic Admirers. "Officer Printype" Responds with Becoming Modesty.

Officer Printype says: "I am overwhelmed by the ovation which has greeted my appearance in your midst. I am simply doing my sworn duty in ridding the Business and Financial Districts of the Bad Characters that for years have made Typewriters a menace to your eyesight. I have mercilessly exposed and relentlessly pursued these dangerous Typewriter Types, which are responsible for more cases of Defective Vision than all other causes combined.

"Report direct to my Headquarters, in the Oliver Typewriter Building, Chicago, any machine whose type is violating the Optical Law and I'll have the offender haled before the Court of Public Opinion."



Printype — OLIVER Typewriter

Printype is owned and controlled exclusively by The Oliver Typewriter Company

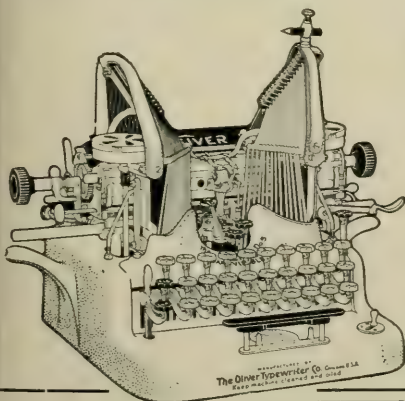
America rings with praise and applause for Printype. This superb new typewriter type has attracted more attention than any typewriter innovation brought out in recent years.

Hundreds of thousands of people have seen this new type and wondered what it was that made Printype Correspondence seem like a spoken message. There's virility, strength and charm in Printype correspondence. There's refinement and "class" and style.

Not because of its novelty—it's inherent in the type!

A Vast Improvement

Printype is designed in shaded letters and numerals, like the type in which books and magazines are printed. It is book type transformed and adapted to modern typewriter requirements.



This radical departure from the old style "outline" letters makes it possible to produce on *The Oliver Typewriter*, a page of manuscript as clear and attractive as that of the finest book. The Oliver is the first and only typewriter that successfully prints print!

The Primary Reason

Printype resulted from our discovery that "outline" type, with its sameness, due to absence of shading, was harmful to the eyes.

The Silent Test

For months, without any advertising, we put hundreds of Printype Oliver Typewriters into actual service, in many diverse lines of business. We wanted the public's verdict. It came in a burst of admiration and a flood of orders that proved Printype a brilliant success.

Printype letters, wherever seen, excited the keenest interest. Business men who received their first Printype letter almost invariably answered, post haste—"Where did you get that type?" Thus Printype captured the country without firing a single shot.

Price Not Advanced

The Printype Oliver Typewriter sells for \$100. You can pay at the rate of 17 cents a day. The "Printyper" is our latest and best model. The new type adds 25 per cent to the value, but not one cent to the price. A small cash payment brings the machine. (248)

Send Printype Coupon Now!

If you or any one in whom you are interested contemplate going to a Business College, write us first and we will, without charge, supply you with some very valuable information on the subject.

The Oliver Typewriter Company,
116 Prospect St., Cleveland, Ohio.

Tell Officer "Printype" to write me a letter and send me his Book. I am interested.

Name.....

Address.....

.....

Don't Take Our Word for It!

Make sure that the **Cartercar** is all we say it is merely by questioning an owner. Be positive that the **Friction-transmission** offers the greatest Durability values by inquiring of the man who has climbed the hills and plowed through mud and sand with his **Cartercar**.

Let him tell you how he stops and starts his car, at will, with never a thought about gear-stripping. How, because of the simplicity of his **Cartercar** he isn't compelled to foot a staggering **repair bill** every once in a while. His satisfaction on being able to adjust almost everything which ever gets out of whack on his **Cartercar**.

Permit a **Cartercar** proprietor to explain why he doesn't

have to sit up nights worrying about the tire problem, because the wear and tear of sudden starting and stopping is done away with by the **Gearless-Transmission**.

Get him to tell you what a pleasure his **Cartercar** has been to his wife and the rest of the family. How through its simplicity his wife was able to drive it safely in no time.

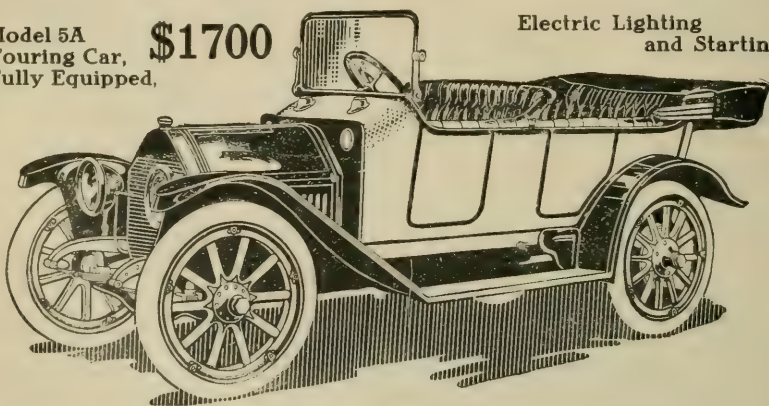
In short, induce him to tell why the **Cartercar** is, and has been, for eleven years the choice of those who appreciate the highest standards of motor car construction.

The Touring Car sells for \$1700 and the Roadster for \$1600.

Model 5A
Touring Car,
Fully Equipped,

\$1700

Electric Lighting
and Starting



Write for a New Catalog

Cartercar Company, Pontiac, Mich.

Branches: New York Chicago Kansas City Detroit Atlanta

MISSOURI BEE
JUNE-1913
Association
Chicago

Cleanings in Bee Culture



VOL. XLI. JUNE 1, 1913, NO. 11.

Take one of these

Special Offers on Gleanings in Bee Culture

if you want to get more profit and pleasure from your bees. You have read on the preceding page of the extra value we propose to give to readers of GLEANINGS IN BEE CULTURE through 1913. You know that our regular subscription price is \$1.00 per year (24 semi-monthly numbers). These combination offers afford still greater value.

Gleanings in Bee Culture

(ONE YEAR)

“

with the A B C and X Y Z of Bee Culture, the leading text-book on beekeeping. } **\$ 2.50**

“

with Dr. Miller's Fifty Years Among the Bees. } **\$ 1.50**

“

with W. Z. Hutchinson's Advanced Bee Culture. } **\$ 1.50**

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with T. B. Terry's great book, How to Keep Well and Live Long. } **\$ 1.50**

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with Milo Hastings' book on practical poultry culture, The Dollar Hen. } **\$ 1.50**

“

with the new revised edition of the A B C of Potato Culture, by T. B. Terry and A. I. Root. } **\$ 1.00**

“

with your choice of any of the following books from the GLEANINGS library: Townsend Bee-book, Doolittle's Year's Work in an Out-apiary, Alexander's Practical Bee Culture, Hand System of Swarm Control, Natural History of the Honeybee. } **\$ 1.00**

“

with an Untested Italian Queen. (Queen to be mailed at our convenience during the season, when we have a surplus. } **\$ 1.50**

“

with a Root Standard Smoker (tin); diameter of the barrel $3\frac{1}{4}$ inches. One of the best smokers made, both in principle and construction. } **\$ 1.75**

“

with a No. 2 Bee-veil. This veil is made of cotton tulle with silk tulle face, and is adjustable to any medium-sized hat. It has an elastic cord in both the upper and lower hems. } **\$ 1.35**

“

with a pair of Bee-gloves. Our special bee-gloves are made with long sleeves and of heavy drilling for wear in the bee-yard. (Sizes: Small, medium, or large.) } **\$ 1.25**

Canadian postage on each of above combinations 30 cts. extra. Foreign postage, 60 cts. additional. Many other combinations to choose from. Ask for our combination catalog.

USE THIS COUPON

I enclose \$.....for combinations checked.

Name

Address

Don't forget extra postage for Canada or foreign countries.

RUSH-ORDER PRICE LIST

"FALCON" Beekeepers' Supplies

Beeway Sections—	250, No. 1, \$1.60;	No. 2, \$1.40.	Plain Sections, 25c per 1000 less.
"	500, " 2.75;	" 2.50.	
"	1000, " 5.50;	" 5.00.	Dewey Foundation-fastener, each, \$1.25; by mail, \$1.50.
"	5000, " 23.75;	" 21.25.	

Light Section Foundation, per pound 1 lb., 65c; 5 lbs., 64c; 50 lbs., 59c
Light Brood Foundation, per pound 1 lb., 58c; 5 lbs., 57c; 50 lbs., 52c
Hoffman Brood-frames, 10, 35c; 100, \$3.00
No. 14 one-story Dovetailed hive, cover, body, bottom, frames, 8-frame 1, \$1.50; 5, \$7.00; 10, \$13.50
10 frame 1.60 7.50 14.50

Dovetailed Supers complete without sections and starters—
No. 2, 4¼x1½ sections } 8-frame: 5, \$2.50; 10, \$4.80
No. 2B, 4¼x1½ sections } 10-frame: 5, 2.75; 10, 5.30
No. 2F, 4x5 sections }

Ideal Bee-veil, 65c; by mail, 75c
Untested Italian Queens, one, \$1.00; six, \$5.50.

Standard Smoker, 85c; by mail, \$1.10
Tested Queens, one, \$1.50; six, \$8.50

DEALERS EVERYWHERE.
"Simplified Beekeeping," postpaid.

Red Catalog, Postpaid.

W. T. FALCONER MFG. CO., FALCONER, N. Y.

Where the good bee-hives come from

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time" Send for Annual Catalog which will tell you who is your nearest Distributer.
It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard G. B. Lewis Company, Watertown, Wis.

Established 1885

We carry an up-to-date line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

HOW FAR CAN A BEE SEE?

That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think!

The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. 10c a single copy.

Edward F. Bigelow, Editor,
The Agassiz Association, Inc.
ARCADIA :
Sound Beach, Connecticut

P-O-R-T-E-R

(TRADE MARK)

BEE ESCAPE

SAVES } TIME } AT ALL
 } HONEY } DEALERS
 } MONEY }

Each, 15c; Dozen, \$1.65, postpaid

If your dealer does not keep them, order from factory, with complete instructions.

R. & E. C. PORTER, Mfrs.
Box 7, LEWISTOWN, ILLINOIS, U. S. A.

ITALIAN BEES AND QUEENS

Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50. Try me for rush order.

J. L. FAJEN, . . . STOVER, MISSOURI

Queens reared scientifically from breeders perfected by years of elimination of all undesirable traits, are far better and more prolific than the ones hatched from a natural swarm of supersedure cells. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating. We have never had any disease in or near our apiary. If you are interested, write us for booklet. Untested queens, 75 cts.; dozen, \$8.00.

WALLIN & CORLIS, Brooksville, Ky.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

BOSTON.—Fancy and No. 1 white comb, 16 to 17; fancy white, 11 to 12. Beeswax, 30.
Boston, May 17. **BLAKE-LEE CO.**

KANSAS CITY.—Our market is bare of comb honey; good demand; supply of extracted is fair, light demand. We quote extracted white, per pound, 8 to 8½; extracted amber, 7 to 7½. Beeswax, 25 to 28.
C. C. CLEMONS PRODUCE CO.
Kansas City, Mo., May 21.

DENVER.—No more comb honey to offer. We quote extracted honey in a jobbing way at the following figures: White, 9; light amber, 8; strained, 6¾ to 7. We pay 28 cts. per lb. in cash and 30 in trade for clean yellow beeswax delivered here.
THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
FRANK RAUCHFUSS, Manager.

INDIANAPOLIS.—Market is now practically bare of fancy white comb honey. No. 1 white is selling at 16 to 17; amber comb is in slow demand, and at varied prices. Best extracted sells at from 11 to 12 in five-gallon cans, according to quantity. Beeswax is in good demand, and producers are being paid 30 cents cash or 32 in trade.
Indianapolis, May 17. **WALTER S. POWDER.**

ZANESVILLE.—A little of last season's honey is still offered, though it is presumed this is now pretty well cleaned up. While the demand is not brisk, some sales are being made right along on comb and on extracted honey in glass packages, there being few calls for the extracted in tin. No. 1 to fancy white-clover comb brings 18 to 19; extracted, 10 to 12. For beeswax, producers are now offered 30 cts. in cash, and 32 in exchange for bee-supplies.
Zanesville, May 17. **EDMUND W. PEIRCE.**

CINCINNATI.—There is a fair supply of comb honey on the market, and we are selling our fancy double-decker comb honey at \$3.75 to \$4.00 per case; fancy extracted honey in 60-lb. cans at 9 to 10, and amber extracted honey in barrels at 6½ to 8, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 28 to 30 cts. delivered here; and if taken out in trade we allow 2 cts. per lb. more.

Cincinnati, May 23. **THE FRED W. MUTH CO.**

CHICAGO.—The market has cleaned up quite well on extracted honey during the past month, and prices remain about the same as in our previous quotation. The clover and linden brings 9 to 10 per lb. when in every sense perfect. Other white honeys 8 to 9 per lb.; amber grades from 7 to 8 per lb. No. 1 to fancy white comb honey 17 to 18 per lb. Other grades from 1 to 5 per lb. less, with very little on the market. Beeswax, 30 to 32 per lb., and in good demand.

Chicago, May 17.

R. A. BURNETT & Co.

LIVERPOOL.—There has been nothing doing in Chilean honey this month. A fair quantity is expected to arrive soon, and we think prices will fall. Sales have been made of Californian at \$9.96; New Zealand at \$10.80; Old Jamaica at \$6.24 to \$6.48, and New Jamaica at \$8.16 to \$8.64. The market is quiet. The beeswax market is very firm; no stock of Chilean on spot. A good business has been done in F. A. Q., for shipment at \$37.02 to \$40.32 per cwt., c. i. f.

Liverpool, April 30.

TAYLOR & Co.

ST. LOUIS.—Since our last, of May 2, the honey market has been in an unchanged condition. The stocks of comb honey, as well as extracted, are light, and quotations are more or less nominal. We quote fancy white comb honey at 16 to 17; No. 2 white, 15; light amber, 13 to 14. The same grades by the case, fancy white comb, \$3.65 to \$3.75; No. 2 white at \$3.25 to \$3.40; amber at \$2.75 to \$3.10, according to quality. Dark and broken honey is unsalable, as there is no demand for it. Extracted honey, Southern, in barrels and half-barrels, for choice light-amber, 6½; dark, 6; same grades in five-gallon cans generally bring half a cent more; California, Utah, and Colorado honey, white, at 9 to 9½; light amber, 8½, all in five-gallon cans. Beeswax is in good demand at 31 cents for prime; inferior and impure sell for less.

St. Louis, May 17. **R. HARTMANN PRODUCE CO.**

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

Now, Then, for Your Early Bee-supply Orders!

Send us a list of the Bee Supplies you want.
Our prices will astonish you.
Also send us your old combs.
We will render your wax and save you money.
Write for particulars.

THE FRED W. MUTH CO.

"The Busy Bee Men"

204 Walnut Street

Cincinnati, Ohio

An Active Season is Here

A carload of perfectly new goods is just on hand from the factory, and another car is expected any day, and the factory has booked us for four cars. This brings up our assortment so that we can now furnish almost any thing listed in the catalog at once.

Hives should be ordered at once if they are to be ready for swarms. Frames, and other inside fixtures too, should be put together now.

If you are wanting any special goods, orders should be made at once. Other cars are coming regularly from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

The mailing of our new catalog was completed some time ago. If you are not on our mailing list send us a postal-card request for this catalog.

If you want to buy in quantities considerably larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder—the best in the market. Write for our catalog.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT

Editor.

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor.

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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Do you want to know how to manage 3000 colonies of bees in 50 yards?

Do you want to learn modern beekeeping upon modern principles—upon principles of magnitude? Do you want to know how to Morganize beekeeping? Do you want to know how one man, by the turn of his hand, started 50 bee-yards turning honey into one modern reservoir? It was but 15 years ago, we were told, one man could find all he could profitably do with one bee-yard. Now comes this modern giant of beedom managing 50 yards that contain an aggregate of 3000 colonies.

THE BEEKEEPERS' REVIEW has made arrangements with this giant of modern methods of honey production, a method that will revolutionize the beekeeping of the future. A series of ten articles that will begin with the July number of THE BEEKEEPERS' REVIEW are from one of the very best-known writers of the day.

The only way you can secure this treat of unusual interest is to sit right down this minute and write your check for a dollar for a year's subscription to THE BEEKEEPERS' REVIEW, Northstar, Michigan; 50 cents more will make you a member of the NATIONAL for one year.

Do It Now!

Banking by Mail

is a plan which places the facilities of this strong, well-managed bank at your very door, although you may live a great many miles away.

The very simplicity of the plan commends it. Enclose your name and address with a money order, check, draft, or with currency, in a registered letter.

We cordially invite you to open an account. Four per cent compound interest is paid on savings accounts. \$1.00 is enough to start.

**The SAVINGS DEPOSIT
BANK COMPANY**

Medina, Ohio

Swarming is Here!

Are you prepared for the increase? Be forehanded, and have your hives all ready. We carry a large line of hives and other goods. Our catalog for 1913 will be sent on request.

Sections and Foundation

A half million sections on hand, and a ton or more foundation ready for instant shipment.

THE A. I. ROOT CO., SYRACUSE, N. Y.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

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Reading notices, 50 per cent additional.

Cash-in-advance discount, 5 per cent.

Cash discount if paid in ten days, 2 per cent.

Bills payable monthly.

No medical or objectionable advertising accepted.

Column width, 2 $\frac{5}{8}$ inches.

Column length, 8 inches.

Columns to page, 2 (regular magazine page).

Forms close 10th and 25th of each month.

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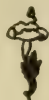
Folks Like Michigan Comb Honey

However it is so scarce that they can not get any. It is a case of under-production. It will pay **YOU TO MAKE THIS YEAR A COMB-HONEY YEAR.** Pages 12 and 13 of our catalog show comb-honey outfits. They're Root's goods too. . . . Beeswax wanted.

M. H. HUNT & SON, LANSING, MICHIGAN
OPPOSITE LAKE SHORE DEPOT



We are booking orders for Italian bees by the pound, with or without queens. . . Write for prices on quantity wanted.



FRUIT-GROWERS!

Send 10 names of fruit-growers and 10 cents, and get "The Southern Fruit Grower" four months. Tells all about fruit-growing, gardening, poultry-raising, etc., in the South. Contains from 32 to 40 pages each month. Address

THE SOUTHERN FRUIT GROWER
Dept. BC, Chattanooga, Tenn.

BEES AND SUPPLIES

You will soon need a bill of supplies. Let us quote you before placing your order. We please thousands, why not you? Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.



LINE-BRED CARNIOLAN Queens!

Carniolans winter with their colonies most populous, build up fast in the spring, enter supers readily, cap their honey very white, are gentle, and no more inclined to swarm than Italians if properly managed. Untested, \$1.00; dozen, \$9.00. Tested, \$1.50; dozen, \$12.00. A limited quantity of bees by the pound, nuclei, and full colonies by the end of June. Ask for prices.

ALBERT C. HANN, PITTSSTOWN, NEW JERSEY
Carniolan Queen Breeder



Am now shipping Untested Queens from My

Celebrated Pedigreed Strain

My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLEY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States. Never had foul brood.

Swarthmore Apiaries,
Swarthmore, Pa.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

PROMPTNESS, LOW FREIGHT, and BEST PRICES are our motto. Satisfaction guaranteed. Think of it! our large **THREE-STORY WAREHOUSE**, right in the heart of the **CITY**, only 5 city blocks from ten of the largest **TRUNK RAILROAD SYSTEMS** in the world, and each trying to beat the other in prompt deliveries, gives us service no other agent enjoys. Even the **FACTORY** itself can't give such railroad service. This, all coupled with practical beemen to handle orders, insures against errors in packing.

WE HANDLE ROOT'S GOODS EXCLUSIVELY, and our warehouse is loaded from cellar to garret. Delays here in waiting for goods to arrive are very infrequent. Write for **SPECIAL PRICES IN QUANTITIES**, sending us a list of your wants. Free catalog for the asking. **BEEWAX** always wanted.

CHICKEN FEED OF ALL KINDS, at jobbers' prices. Car a week.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.

"Griggs is always on the job."

"If Goods are wanted Quick, send to Pouder."



Bee Supplies Up to Date

EQUIPMENT.— Storeroom built expressly for the business; large concrete basement with just enough moisture to prevent breakage in sections and shrinkage in dovetailed corners of supers and hives. Electric lift brings up two tons of goods to first floor in thirty seconds for shipment. Does this appeal to you?

QUALITY.—Root goods at the factory schedule of prices, whether you require one hive or a hundred. This is the quality that I have handled for nearly a quarter of a century, and the kind that you can recommend to your visiting neighbors. I MIGHT have increased my profits for a SHORT TIME by handling other goods, but I would not have remained so long in the business.

GUARANTEE.—Many articles described in my catalog can now reach you by parcel post, and I assume all responsibility in safe arrival of goods. I have the very finest tight-seal glassware for putting up extracted honey, and I guarantee safe arrival—no breakage at purchaser's loss. I have waxed-paper honey-jars that are a decided success wherever they have been used.

MY CATALOG.—My catalog describes all of these things, and contains valuable information for those who are interested. I shall be pleased to show you how promptly I can get one into your hands if you will drop me a card.

BEESWAX.—Remember me when you have wax to offer, cash or trade, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue

Notice to Beekeepers

Though my stock suffered severe injury in the flood, I shall be able to continue in business. A carload of brand-new goods is on the way, the railroads are again accepting and delivering freight, and you need not hesitate to send your orders here. Any thing temporarily out of stock will be sent direct from the factory where such orders will receive preferred attention.

My new location, in the Airdome building on South Sixth Street, is even more accessible than the old, and affords improved facilities for the prompt handling of orders.

The damaged stock here has been disposed of with the exception of a few odds and ends. I have been too busy to compile a list, but if you will name any item you can use in slightly damaged ware, it will be supplied if possible.

I take this opportunity to express my appreciation of the liberal patronage accorded me hitherto, and of the many kind expressions of sympathy from my friends.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

BEEKEEPERS

Your busy season is close at hand. Get wise, and place your orders with the supply dealer who will save you money and serve you best with Root's quality sections, frames, foundation, smokers, extractors, etc. I can serve you now without delay. My 1913 catalog tells you all about these things; besides, it contains a lot of information to those interested in bees. Special attention given to the breeding of three-banded Italian bees and queens. Catalog free.

EARL M. NICHOLS

Lyonsville, Massachusetts

SAVE TIME--- Fold your sections and put in foundation at one operation, quick and perfect, with a Rauchfuss Combined Section Press and Foundation Fastener; guaranteed to give satisfaction. Send for illustrated circular. Price \$3.00 delivered anywhere in U. S.

The Colorado Honey Producers' Assn., Denver, Colo.

PATENTS

25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLauchlin Building, Corner Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts

Patent Counsel of The A. I. Root Co.

Boston is the Shipping Center of New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR

"FALCONER"

Write for discounts--we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

Our HAND-MOORE STRAIN 3-BAND ITALIANS

Are the best honey-gatherers. They spoil our white-clover honey by mixing it with red-clover. Record tongue reach 23-100 of an inch. Breed strictly for business. Untested, 75c; 12 for \$8.00; 50 for \$25.00. Select mated, \$1.00 each. Virgins, 40c each, or \$1.00 per doz.

LATSHAW HONEY COMPANY

CARLISLE, INDIANA

Honey Wanted

Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,

Queen-breeder.

Route 1, Morgan, Ky.

LEWIS HIVES ARE BUILT LIKE FURNITURE
ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

Bees by the Pound

**Safe arrival guaranteed to any point
within five days from Medina, Ohio.**

We have finally perfected our pound packages so that we are now able to ship bees without combs to almost any point in the United States and nearby points in Canada without danger of transmitting bee disease of any sort. Half a pound of bees is nearly the equivalent of a two-frame nucleus; one pound, to three frames; two pounds, to six frames; three pounds, to an ordinary colony such as may be sent by express. The express on these pound packages is only about a quarter of the express on the equivalent value of bees when they are sent on combs. We shall be ready to ship bees in pound lots from Medina, with 600 colonies to draw from, by the first of June, at the following prices, without queens: Half-pound package, \$2.00; pound package, \$3.00; two-pound package, \$5.00; three-pound package, \$6.00.

Through July, and on throughout the season, the prices without queens will rule as follows: Half-pound package, \$1.00; pound package, \$1.50; two-pound package, \$2.50; three-pound package, \$3.00.

If you want queens with the pound packages, add the price of the queen selected to the price of the bees.

Express on half a pound of bees with queen, within 300 miles of Medina, will be approximately: One pound, 38 cts.; two pounds, 45 cts.; three pounds, 57 cts.

NOTE.—We can not ship bees by parcel post other than a queen-bee and a dozen or so attendants.

We have so perfected our cages for shipping bees in pound lots that we now feel for the first time that we can guarantee safe arrival at the prices named above, where bees are not on the road more than five days. As a general thing they will go through in good condition, even when out more than six days; but for the present, at least, we do not feel like assuming a greater limit than five days. Our guarantee means that, if bees fail to go through alive, or if they go through in bad order, we will either replace the shipment or send enough more bees to make up for the loss at our own expense, or refund the money. Orders will be filled in rotation after the first of June. Send in your orders now, and thus insure early delivery.

In addition we guarantee to give full measure of bees by weight. Half a pound will contain from 2200 to 2500 bees, and larger packages in proportion.

PRICES OF QUEENS.

Untested.....	June, \$1.50;	July to October, \$1.00.
Select untested.....	June, 1.75;	July to October, 1.25.
Tested.....	June, 2.50;	July to October, 2.00.
Select tested.....	June, 3.50;	July to October, 3.00.

Untested Home-bred Queens in Quantity Lots in August and September.—During August and September we are prepared to name very low prices on large quantities for requeening. Prices depend on supply available, and quoted on application.

Send all orders to the home office of The A. I. Root Co., Medina, Ohio. Orders from the extreme South will be filled from Florida and Texas; those in the extreme West, from California.

N. B.—To get the price of a package of bees and a queen, add the price of the queen selected to the price of the package.

QUEENS!

Real queens. We have them for you. We are large producers of comb honey, operating from 500 to 1000 colonies of bees all the time. If you haven't a first-class queen you can not expect crops of honey. Would you not prefer to purchase your queens from a breeder that rears queens to make honey crops with, rather than from one who is rearing them exclusively for the market, regardless of whether they produce honey or not? We are in position to know whether our breed of three-band and golden Italians are honey-producers. We have had honey-houses at several points to exhibit our honey, always taking first prize. Walter S. Ponder, of Indianapolis,, in 1907, found three uncapped cells out of 68 24-lb. cases of fancy white honey. From others we have had letters equally good. Untested, 85 cts.; select untested, \$1.00. Waranted, \$1.10; tested, \$1.50.

Write for our large bee and queen circular for prices by the nuclei, pound, etc.

The Penn Co., Penn, Miss.
Lowndes County



Western Queens!
Three-band Long-tongued Italians

FREE.—As a special introductory offer we are giving absolutely free, with each order for 12 tested or untested queens, one select tested queen. This offer good only to June 15. Prices: Untested, 1, 90c; six, \$3.80; 12, \$9.00. Tested, 1, \$1.35, 6, \$6.50; 12, \$12.00. Virgins, 40c; 3 for \$1.00. Queens shipped on one-frame nuclei, \$1.75 extra. . . Satisfaction guaranteed. Write for our new plan. Queens made to order.

GLEN L. EVANS, GREENLEAF, IDAHO
Breeder and Importer of Fine Queens

PHARR'S QUEENS. . . .

We desire to thank our former patrons, and ask that, when you are in need of Golden or three banded Italians, you send your order to us and receive fair treatment. Tested, \$1.50; untested, \$1.00. For prices on large quantities write us. . . Breeders, \$3.00 to \$5.00.

New Century Queen Rearing Co.
Berclair, Texas

Taylor's Three-banded Italian Queens

are now Ready to go by Return Mail

We have hundreds of fine testimonials about our queens. Untested, \$1.00 each or \$9.00 a doz. Tested, \$1.25 each or \$14.00 a doz. Select tested, \$1.50 each or \$16.00 a doz. Breeders, the very best, from \$3.00 to \$5.00 each. No better queens raised. Send all orders to

J. W. Taylor & Son, Beeville, Texas

QUEENS
AND BEES

An improved superior strain of Italians is what QUIRIN RAISES. Our stock is Northern bred and hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis., and July 20th (of same year) he wrote us saying they did just splendid, as at that date they had already filled their supers, and that he would have to extract them. We have files of similar testimonials.

Prices before July:	1	6	12
Select queens	\$ 1 00	\$ 5 00	\$ 9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00		
Golden breeders	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Three-comb nuclei, no queen	3 50	20 00	35 00
Colonies on 8-frames, no queen	6 00	30 00	
One pound bees, no queen	2 00	10 00	
Half pound bees, no queen	1 50	7 00	

Add price of queen wanted with bees. Bees by the pound, nuclei, and colonies; if wanted before June 1, add 25 per cent. QUEENS NOW READY. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO

W. H. LAWS

is again ready to fill your orders for queens the present season. Law's Red-clover Italians are as good as can be had.

One firm who bought over 1100 queens from me in 1912 says, "Your queens are very satisfactory." We are booking orders now, and we are going to do our level best to mail all queens by return mail when so ordered. My bees are absolutely clean and free from all disease.

Queens sent out under the usual guarantees. Prices: Single queen, \$1; six for \$5. Breeding queens, none better, each, \$5.

W. H. LAWS, BEEVILLE, BEE COUNTY, TEXAS

Miller's Strain of Red-clover ITALIAN QUEENS
By Return Mail after June 5 to 15 or order returned

Bred from superior breeders for business; gentle; no better hustlers; bees roll honey in; three-banded; Northern-bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored long-tongued red-clover strains. Untested, \$1.00, six, \$5.00; dozen, \$9.00. Select untested, \$1.25; six, \$6.00; dozen, \$11.00. Satisfaction guaranteed.

Isaac F. Miller, a queen specialist and breeder for sixteen years, previously of Brookville, Rt. 2, Reynoldsville, and lately of Oil City, Rt. 2, Pa., is agent and breeder for E. L. Miller. Send all orders to

I. F. MILLER, Rt. 2, Brookville, Pa.



Notice! Queens by Return Mail, from Caraway's Prize Winning Stock.



Three-banded Italians only, at the following prices: Untested, 90 cts. each; 12 for \$9.00; 100 for \$65.00. Tested, \$1.00 each; 12 for \$10.00. I have a few fine breeders at \$5.00 each.

Two hundred two-frame nuclei: One for \$3.00; ten for \$27.50. For larger number, write for price. Also bees by the pound. One pound for \$1.50; 10 one-pound packages for \$12.50. Add to the above the price of the queen or queens desired. I guarantee nuclei and bees by the pound to arrive in fair condition within a radius of 1250 miles. Positively no disease in my apiaries.

On all queens purchased of me I guarantee them to give entire satisfaction. I use the best-known methods of rearing queens. My original stock was from Root's strain and other prominent breeders, and I keep adding imported blood to my apiaries.

I hold 92 first, 45 second, and 2 third prizes on my bees and queens and products of my apiaries. This speaks for itself. The best possible to obtain. My three-banders carried off first prize again at Dallas and Waco last fall.

I will have from 500 to 1000 mating-nuclei. I also sell nuclei. If interested write for circular and price list describing my bees and queens. It is free.



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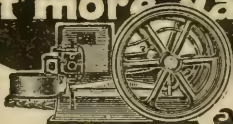
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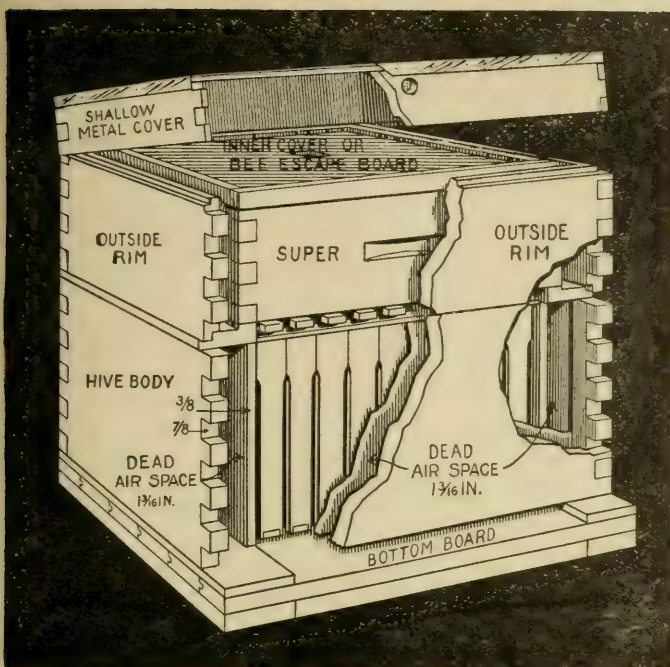
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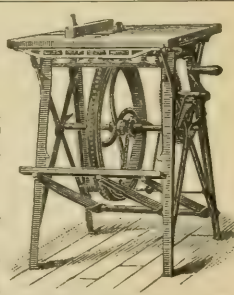
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By Return Mail, from Moore's Strain of Italians, at Wholesale Prices.

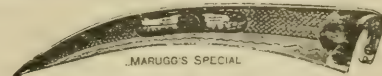
Untested, 75 cts. each; 10 for \$6.50. Tested, 90 cts. each; 10 for \$7.50. I guarantee every queen to give satisfaction or your money refunded. I use only the modern up-to-date methods of rearing queens. Moore's strain of bees is well known as a superior strain of honey-gatherers. They are very gentle; very little smoke is necessary in handling them. Positively no disease in my apiaries. The above prices are good for June and July only. Send your order to

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Brighter than electricity or acetylene.
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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—White and amber honey, in 60-lb. cans, at 8½ and 7 cts. CHAS. ZWEILY, Lemont, Ill.

FOR SALE.—1913 extracted orange-blossom honey in five-gallon tins. Sample, 10 cts. OTTO LUHDORFF, Visalia, Cal.

FOR SALE.—Finest quality clover and clover-basswood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Hawaiian light-amber honey, put up in 60-lb. cans, two in a case, cheap. Will mail samples to prospective purchasers. KAUAI HONEY CO., Honolulu, Hawaii.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb, extracted honey, and beeswax. Write us. HILDBRETH & SEGELKEN, New York.

WANTED.—White-clover or basswood extracted honey. Give lowest prices. D. H. WELCH, Racine, Wis.

We will pay the highest cash price for thoroughly ripened extracted honey. Write us, stating quality and quantity, with prices F. O. B. your station. SPENCER APIARIES, Nordhoff, Cal.

WANTS AND EXCHANGES

WANTED.—Small place (in California), 1 to 20 acres, including any number of bees. C. R. PARKS, Woodland, Cal.

WANTED.—To sell one, two, and three frame nuclei with untested queens, cheap. WM. ATCHLEY, Beeville, Texas.

WANTED.—To exchange for bees, one Debold safe, 2300 pounds, as good as new; double door and burglar-proof. Reason for selling, out of business. L. J. BERGH, Mt. Horeb, Wis.

REAL ESTATE

FOR SALE.—160 acres good grain and hay farm, with running water; ideal stock farm; postoffice five miles; railroad town ten miles; located in Williams Co., N. D. Price \$2000.

MRS. H. E. KILBURY, Boulogne, Fla.

FOR SALE.—At a bargain, 20-acre fruit ranch in the famous Wenatchee-Columbia River red-apple belt. Planted to standard winter apples, trees four years old. Will take bees and good location in South in part payment. For full particulars write J. D. YANCEY, Port Columbia, Wash.

Bee-ranch in south Texas for sale. Just out of city limits of San Marcos, a splendid location for an apiary or poultry-ranch—no bees near; splendid bee-range. Good market for all kinds of produce; nice modern cottage. One of the most healthful locations in Texas. If interested, address

J. P. CALDWELL, San Marcos, Texas.

FOR SALE.—13-acre fruit and bee farm; 150 colonies of bees and all fixtures to run for comb and extracted honey; \$2500 buys the whole, part cash. For further particulars write to

JOHN FRASER, Gilboa, Schoharie Co., N. Y.

Virginia apple land will make you independent. \$15.00 per acre and up. Easy payments. Buys No. 1 fruit and farming land. Write at once for our illustrated booklet, and low excursion rates. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., Room 73, Roanoke, Va.

FOR SALE

A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. THOS. LITZ, Osceola Mills, Pa.

Second-hand 5-gallon honey-cans in good condition, 25 cts. per case. J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

Several thousand 4¼ x 1¼ wide beeway sections; a bargain. Also a new super-foundation mill. Write. ARTHUR RATTRAY, Almont, Mich.

FOR SALE.—Beekeepers' supplies; bees and honey. The only satisfactory hive for this climate. Write for circular. A. E. BURDICK, Sunnyside, Wash.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Texas.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—50 eight-frame dovetailed hives, 40 cts. each; 50 eight-frame T 4¼ x 4¼ x 1½ supers, 15 cts. VALLEY CITY POULTRY FARM, Rt. 12, Grand Rapids, Mich.

FOR SALE.—Thirty 1½-story air-spaced hives, Falconer make. They are nearly new, all same size; complete except sections and foundation. Price, nailed and painted, \$2.00 each, or \$50.00 for the lot. SHIRLEY A. HOWDEN, Fillmore, N. Y.

Bee supplies for all southern Idaho and east Oregon beekeepers, wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest. C. E. SHRIVER, Boise, Idaho.

1000 fence separators and section-holders for 4 x 5 sections; 800 slotted section-holders and slotted wood separators for 4¼ x 4¼ sections at one-half factory price. Good as new; no disease. P. TEN BROECK, Rt. 4, Saugerties, N. Y.

FOR SALE.—No. 15 Cowan reversible extractor, good as new, \$10; 10-inch foundation-mill, first-class condition, late pattern, \$20. Several hundred dovetailed hives and supers in good condition at half the cost of new material in the flat.

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FOR SALE.—Best No. 1 sections, 1000, \$4.40; 2000, \$8.60; 3000, \$12.60; 5000, \$20.00. No. 2, 50 cts. less. Plain, 25 cts. less. Five white-pine hives and supers, \$7.25; ten-frame, \$8.00; 100 Hoffman frames, \$2.60. Best goods, lowest price. Catalog free. H. S. DUBY, St. Anne, Ill.

FOR SALE.—Two Hatch wax-presses, two solar extractors, two two-frame extractors for frames shorter than the Langstroth; one Daisy foundation-fastener; one Lewis fastener; one globe veil; one capping-melter; one gravity separator. These are practically new goods, and will be sold at 60 to 70 per cent of their original cost.

LEON C. WHEELER, Barryton, Mich.

BEES AND QUEENS

Golden Italian queens, untested, \$1.20, after June 15. E. H. BUCKMAN, Chester, Pa.

Golden Italian queens, \$1.00 each; six for \$5.00. Warranted. J. B. CASE, Port Orange, Fla.

Queens by return mail. Mismatched Italians 40 cts. each & \$4.00 per doz. LATSHAW HONEY CO., Carlisle, Ind.

FOR SALE.—60 cts. each; a lot of mismatched Italian queens—the super-filling kind. J. F. SEMPERS, Aikin, Md.

FOR SALE.—20 full colonies of pure Italian bees, in eight-frame dovetailed hives with Hoffman frames. Young queens. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Fine Italian queens, three-banded, prolific, hardy, gentle. Ready May 15. Untested, \$1.00 each. J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

Queens by return mail, untested, \$1.00 each: six, \$5.00; \$9.00 per dozen. Italians and Carniolans. WM. ATCHLEY, Beeville, Bee Co., Texas.

Virginia three-banded Italian queens, untested, 75 cts.; tested, \$1.00. All dead queens replaced free. Ready May 15. S. CLICK, Box 16, Rt. 2, Mt. Jackson, Va.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address DERROY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—Italian queens now ready, safe as rival and pure mating guaranteed. Select untested, \$1.00 each. All orders will receive our prompt attention. E. A. SIMMONS, Greenville, Ala.

Day-old virgin queens will please you. Good way to get fine Italian stock at low prices; 50 cts. each; \$5.00 per doz. Get my prices on full colonies. GEORGE H. REA, Reynoldsville, Pa.

FOR SALE.—Full colonies of Italian bees with young queen, \$6.00; nuclei, \$1.25 per frame; queen extra. Write for prices on queens. ARVIN, NUSBAUM CO., Meldrim, Ga.

Golden Italian queens of best strain, all cells built in strong colonies, no foul brood or other disease. Untested, \$1.00; tested, \$1.50. Cash with order. Booking orders now. BEN ROBINSON, Taylor, Tex.

WANTED.—Queens, bees by the pound, in exchange for bass viol, talking-machine, field glasses, No. 1 watch fox dog, brood and extracting frames. G. C. THRASHER, Laquin, Pa.

Day-old virgin queens will please you. Good way to get fine Italian stock at low price; 50 cts. each; \$5.00 per doz. Untested, \$1.00; tested, \$1.50. GEO. H. REA, Reynoldsville, Pa.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

I shall require all my colonies this spring, and will sell all one-year-old queens at 40 cts. apiece; \$4.00 per dozen; untested Italians, 60 cts. each, \$5.00 per dozen; no disease. Safe arrival guaranteed. EDWARD O. MESERVE, Ventura, Cal.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Virginia.

Choice of virgin queens, daughters of a \$10 Doolittle or imported Italian breeders; 50 cts. each; \$5.00 per dozen. Directions how to introduce virgins safely free. Untested queen, after June 15, 75 cts. J. B. HOLLOPETER, Pentz, Pa.

Hardy northern-reared queens of Moore's strain of Italians, ready June 15. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. P. B. RAMER, Harmony, Minn.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnett's, Va.

Italian Queens.—Gentle three-banded stock. A new strain bred for honey-gathering ability. Untested queens, \$1.00 each; 12 for \$9.00. Two-frame nucleus, Danz. frames, with queens, \$3.00 each. H. C. SHORT, Winchester, Ohio.

Curd Walker's strain of red-clover queens produce workers that are fine honey-gatherers. Testimonials sent on request. Untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; 24, \$17.50. Tested, \$1.50. CURD WALKER, Queen-breeder, Rt. 1, Box 18, Jellico, Tenn.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed. C. B. BANKSTON, Buffalo, Leon Co., Texas.

The two B's of quality. Italian bees and Sicilian Buttercups. For all that is best, unexcelled. Untested queens, \$1.00 each, six for \$5.00. Buttercup eggs from prize-winning pen, 15 for \$4.00; "A" pen, 15 for \$2.50; 30 for \$4.00. H. WILLIAM SCOTT, Barre, Vt.

168 colonies of bees for sale, located in the melilotus and alfalfa belt of northeast Mississippi. With an average honey season will yield a revenue of \$1200 to \$1500. The price for quick sale is \$600 cash. For further information write MAER-STANLEY REALTY CO., Columbus, Miss.

FOR SALE.—Guaranteed purely mated three-banded Italian queens. I recommend four points—gentle, prolific, extra good honey-makers, good winterers. J. E. Hand strain. State inspector's certificate. Queens by return mail or your money back. Select untested, 85 cts. J. M. GINGERICH, Rt. 3, Arthur, Ill.

Queens from Georgia apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested, \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb, packed any size to suit customer. Prices and samples sent free. JOHN W. CASH, Bogart, Ga.

Superior Italians.—I am propagating queens from selected breeders—Alley, Moore, and Pratt strains, mated in apiary of 100 colonies, mostly finest Goldens. Untested queens, \$1.00; two-frame nuclei with queen, \$3.00; full colony, eight-frame, bees and brood, in ten-frame Dovetailed L. body, with queen, \$6.50. ISAAC F. TILLINGHAST, Factoryville, Pa.

FOR SALE.—Swarms! Swarms! ½ lb. young bees with untested Italian queens, shipped as 1½ lbs., \$1.75; 1 lb. young bees with untested Italian queen, shipped as 2½ lbs., \$2.25. F. O. B. here; 6, 10 cts. less each. This is the best way to increase and improve your bees. Safe arrival and satisfaction guaranteed. Circular free.

W. D. ACHORD, Fitzpatrick, Alabama.

Three-banded Italian queens and bees. Untested queens, 75 cts. each; six, \$4.25; twelve, \$8.00; tested, \$1.25 each; six, \$7.00; twelve, \$12.00. For select queens, add 25 cts. each to the above prices. Nuclei without queens, one-frame, \$1.50; two-frame, \$2.50; three-frame, \$3.00. For nuclei in quantity lots, and bees by the pound, write for prices and circular. ROBT B. SPIGEE, Wharton, N. J.

FOR SALE.—Three-banded Italian queens and packages. Best honey-gatherers. Satisfaction or your money back. No disease. Ready about April 1. One untested queen, 75 cts.; 6 for \$4.25; 12 for \$8.00. After April 15, ½ lb. bees, \$1.00; 1 lb., \$1.50; good weight; f. o. b. here by express. Add price of queens if wanted. These are young bees, so will live longer than those you have wintered.

W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

We will requeen our 2000 colonies this year with young queens bred from our best home and imported Italian stock. We offer the prolific year-old queens, removed from these hives, at 40 cts. each, \$4.20 per dozen; \$30.00 per 100. Untested queens, this year's rearing, 60 cts. each; \$6.50 per dozen; \$50 per 100. We breed for business, not looks. No disease; delivery guaranteed.

SPENCER APIARIES, Nordhoff, Cal.

Murray's famous North Carolina bred Italian queens (red clovers and goldens), for sale again. As good as the best; no foul brood known. They are as good honey gatherers as can be obtained, and winter as well. My improved strain is carefully selected, and bred up from Moore's, Root's, and Davis' imported stock. Select untested, doz., \$9.00; one, \$1.00. Untested, one, 75 cts.; doz., \$8.00; tested, \$1.25. Select tested, \$1.50; extra select tested, \$2.00. Breeders, \$3.00 and \$5.00.

H. B. MURRAY, Queen-breeder, Liberty, N. C.

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White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

FOR SALE.—20 H. P. four-cylinder Franklin roadster, \$150. WILLIAM N. MILLER, Dodgeville, Wis.

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WANTED.—Assistant in apiary. State age, experience, wages, etc. W. D. WRIGHT, Altamont, N. Y.

Wanted at once, help in our apiaries. Give wages wanted; also age and experience, first letter. THE ROCKY MOUNTAIN BEE CO., Box B, Forsyth, Mont.

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Buff Orpingtons, Buff Leghorns, Anconas.

MARLE W. WEMMER, Jacksonville, Ohio.

Sicilian Buttercups. Best of all. Eggs for hatching. Mating list free. D. S. DURALL, Hurdland, Mo.

Our best Fishel strain White Rocks; 15 eggs, \$2.00. Free and safe delivery insured by parcel post. B. T. BOSSERMAN, Williamstown, Ohio.

Sicilian Buttercups. The most persistent layers and non-sitting variety. Eggs, \$1.50 and \$3.00 per 15. WALTER M. ADEMA, Berlin, Mich.

S. C. Brown Leghorns, day-old chicks, \$3 per 25; \$11 per 100; stock and eggs, none better. Booklet free. H. M. MOYER, Rt. 2, Bechtelsville, Pa.

S. C. White Leghorns of quality, prolific layers of large snow-white eggs; 15, \$1.50. VALLEY CITY POULTRY FARM, Rt. 12, Grand Rapids, Mich.

Eggs that hatch big strong chicks from I. R. ducks, Houdans, Leghorns, Wyandottes, Minorcas, White Games, Orpingtons, \$1.50 per 15; \$2.75 per 30; \$4.00 per 45. Mating list.

BROOKSIDE FARM, Trimble, Ohio.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties, too. Per setting of 15, \$1.00. Satisfaction guaranteed.

W. O. ROUDABUSH, Hagerstown, Md.

Eggs from prize-winning single-comb Buff Orpingtons—2 special pens; Martz and Rogers strain, \$3.50 per 15; utility flock, free range, \$1.25 per 15; \$5.50 per 100. Also eggs from fawn and white Indian Runner ducks, scoring up to 94½; \$1.50 per 13; \$4.50 per 50. JAMES MCKENDRICK, Glenlussa Farm, Erie, Iowa.

INDIAN RUNNER DUCKS

True Fawn and White Indian Runner ducks. Handsome and hardy, and the best of layers. I can start you with the best. Eggs, \$1.00 per 11.

H. C. LEE, Box 254, Brooksville, Ky.

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.

C. O. YOST, Box D, Rt. 4, Winchester Ind.

BEEKEEPERS' DIRECTORY

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is nothern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

A. I. ROOT

GUIDE TO SEX INSTRUCTION.

The above is the title of another beautiful and exceedingly useful book for the family, by Prof. T. W. Shannon. In our issue for June 1, 1912, I gave a little notice of one of his small books—"How to Tell the Story of Life." Prof. Shannon's lifework is along this line. He has given the world something like half a dozen books on this matter of teaching the children, and warning them against the dangers that beset early manhood and womanhood along this line. The most of his books have been small ones, selling for from 15 to 25 cents. The new work, just out (1913), has 266 pages, beautifully printed on fine heavy paper, and is illustrated with some of the finest engravings that can be produced at the present time. I have given it a hasty review; and, no matter where I happen to open the book, I involuntarily thank God for giving to the world a man of such wisdom and good judgment as Prof. Shannon, to talk to the people of this present age.

It is some years since our friend took up this matter of sexual matters in the home; and the conviction forces itself on me that he has been in touch and consultation with the best and wisest humanitarians of the present day. I have repeatedly called attention to the fact that, while we are giving the greatest attention just now to improvements in growing corn and potatoes, horses and cattle, not to neglect poultry, until just recently but very little attention has been given, comparatively, to growing better boys and girls than the world ever saw before. When I say better I do not refer entirely to physical improvement. Just now it begins to dawn on the intelligence of the world the importance of encouraging purity, righteousness, and godliness, and discouraging crime and criminals. The Men's Brotherhood of our Congregational Church have just taken up this matter; and a Y. M. C. A. man of excellent authority told us last Sunday that two-thirds of the blind people in the United States need not have been "born blind," and that the blind babies that are coming into the world are the direct result of ignorance and crime along the lines that Prof. Shannon takes up.

The price of this book is \$1.50, and it can be had of the S. A. Mullikin Co., Marietta, Ohio.

SPECIAL NOTICES

By OUR BUSINESS MANAGER

SECTION-BOXES.

While we have been crowded with orders for hives and supplies of all kinds, and our stock of most articles is badly depleted, we still have a large stock of choice sections which we can ship on first train after receipt of order. If you have a good honey-flow, and need more sections, remember we are in shape to furnish them promptly.

SWEET CLOVER AND ALFALFA MIXED.

We have just received a shipment of seed from California, which we bought for hulled white sweet clover. The U. S. government seed expert pronounces it 28 per cent white sweet clover and about 72 per cent alfalfa, with a few weed seeds in it. We offer it for 20 cts. per lb.; \$1.80 for 10 lbs.; \$16.80 per 100 lbs., bags included. We shall be pleased to submit samples if interested.

BUCKWHEAT SEED.

We have a good stock of choice buckwheat for seed, both silverhull and Japanese. The season for sowing is rapidly approaching. Our price for seed, while present supply lasts, is 40 cts. per peck; 75 cts. for $\frac{1}{2}$ bushel; \$1.25 per bushel; \$2.25 for two bushels, bag included in each case. If you plan to sow any, and are not provided with seed, you had better send your order while the seed is available.

SECOND-HAND CANS.

There is still an opportunity to get some of those good second-hand 60-lb. honey-cans. As a rule we do not recommend second-hand cans for good honey; but these are selected, all questionable ones being thrown on the dump, and only those which we know to be sound and free from rust inside are saved. For amber or off grades of honey these should be just as good as new cans. Price: \$3.50 for 10 cases of two cans each; \$7.50 for 25 cases; \$25.00 for 100 cases.

LECTURES ON BEEKEEPING.

We have arranged to continue the lectures on our roof at 10 Vine St., Philadelphia, on Tuesdays and Fridays from 11 to 12 o'clock, during May and June. Tuesdays will be devoted to instructions for beginners, handling bees, taking swarms, preparing beekeepers, the scientific side of the transformation of nectar, the formation of wax, with some instructions to the bacteriological side of foul brood, its contagion, etc. Kindly note that the hour is 11 to 12, on both Tuesday and Friday.

BEESEX WANTED.

During the first four months of this year we have used eighty thousand pounds of beeswax against fifty thousand in the same period a year ago. Others who use beeswax for foundation have also used an increased amount, and as a result, there is a shortage of available supplies which is becoming acute. If any of our readers have any wax or old combs from which to make some, they will not soon find a better market than exists at present. The rush for this season will be past in four to six weeks, so that you should lose no time in making shipment of any available supply. We are prepared to pay any reasonable price—as much as you are likely to get any where. Let us hear from you if you have any to furnish.

Convention Notices

There will be a field meeting of the New Jersey Beekeepers' Association at the apiary of Geo. Grover, near Trenton, on the Trenton-Lawrence trolley, June 25, 1913. Program later.

New Egypt, N. J., May 13. E. G. CARR, Sec.

Kind Words from our Customers

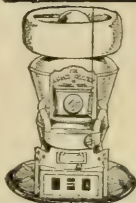
LOOKING FORWARD TO THE 100TH BIRTHDAY.

My interest in the magazine holds because of Our Homes, Poultry, and Gardening, and especially because these are from the mind and pen of one of my own age, and who, like me, is expecting to round out at least one hundred years of life worth living. I shall be 73 April 9. I am thinking (though not yet invited) to be somewhere around in some capacity when Mr. A. I. Root and Mr. T. B. Terry are eating their birthday dinners. There will be no flesh of any kind in mine, nor coffee nor tea nor other similar poisons. I abandoned the use of coffee and tea in 1874; of cigars later, and flesh later, but a good while ago. Not since Nov. 1, 1886, when I rallied from a dreadful illness and a pulse of 160, have I consulted a physician or taken any medicine for sickness. Foods wisely chosen, eaten, or denied, have kept me pretty well balanced. Because of these experiences, and the fact that Mr. Root is somewhat like-minded, I want to keep up with his sayings in GLEANINGS.

Dudley, N. C., Feb. 26.

R. B. JOHNS.

BUY YOUR FURNACE \$10 DOWN \$10 A MONTH



This No. 1 Jahan Down-Drift Furnace (weight over 1000 lbs.) as it stands \$48.00 cash, delivered east of Omaha and north of Ohio River.

Our monthly payment plan of selling direct saves you the dealer's profits and charges for installation. The

Jahan Furnace

with the patented "Down Draft System" is best for residences, schools, hotels, churches, etc., because it delivers plenty of heat wherever and whenever desired at a saving of 1-3 to 1-2 in fuel bills. Install the Jahan yourself. We send complete outfit, freight prepaid with special plans, detailed instructions and all necessary tools for installation. Satisfaction guaranteed or money refunded.

Write for free illustrated book.

THE JAHANT HEATING CO.

157 Mill Street

Akron, Ohio

Save $\frac{1}{3}$ to $\frac{1}{2}$ on Fuel Bills



FAMOUS QUEENS direct from ITALY!

Bees more beautiful, more gentle, more industrious: the best honey-patchers. Universal Exposition, St. Louis, Mo., 1904, the highest award. Extra breeding queen: \$3.00; selected, \$2.00; fertilized, \$1.50. Write.

Hartford, Conn., April 20, 1907.

Please find enclosed \$11.00 for six queens. I hope to get as good ones as I received before, and if I do I shall want more.

A. W. YATES.

Norwichtown, Conn., Sept. 14, 1912.

I send you money order for \$3.00. I wish two of your fertilized queens. I have seen some of your bees owned by Mr. Yates, and I like them.

ALLEN LATHAM.

ANTHONY BIAGGI, Pedevilla near Bollinzona, Italy

Please in writing mention GLEANINGS.

Pure Golden Italian Queens

Better than Last Year

Mated, \$1.00; select mated, \$1.50; select tested, \$3.00; breeders as high as \$50.00. Send for booklet and get the best. My breeders produced over 200 pounds of surplus each last year. Try them and see what they will do for you.

GEORGE M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Western Beekeepers can save money and get the best goods obtainable especially made to meet Western conditions. Send for catalog and special price list to

The Colorado Honey Producers' Assn., Denver, Colo.

LEWIS BEEWARE MEANS

GOOD QUALITY, SCIENTIFIC WORKMANSHIP
CAREFUL PACKING
EFFICIENT SERVICE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

SPECIAL SALE!

Root's Goods Below Our Cost

Beekeepers will change their minds and use different kinds of supers all of a sudden. Our trade used, before section-supers, shipping cases, etc., while now nearly every beekeeper in our locality produces bulk comb honey, which, consequently, leaves us with a big stock of section supers on hand, which we are willing to sell very cheap just to dispose of them. They are all in the original packages, just as we received them from the factory, and there is absolutely nothing the matter with them, only we have hardly any more sale for them in our locality.

70 2 I-8.....	.37 each	60 2 P-8.....	.37 each
25 4 I-8.....	.50 each	100 4 I-10.....	.55 each
65 4 S-8.....	.50 each	80 2 I-10.....	.40 each
40 2 S-8.....	.37 each	35 4 S-10.....	.55 each
40 4 P-8.....	.50 each	75 2 S-10.....	.45 each
10,000 4 x 5 x 1 ³ / ₈ plain sections, 100 for .55; 300 for \$2.00; 1000 for \$3.70.			

SHIPPING-CASES

	With glass, in lots of 10	100
150 24-lb. regular 4-row for 4 ¹ / ₄ x 1 ¹ / ₂ sections.....	\$1.30	\$12.50
150 12-lb. regular 3-row for 4 ¹ / ₄ x 1 ⁷ / ₈ sections.....	.90	8.50
150 12-lb. regular 3-row for 4 ¹ / ₄ x 1 ¹ / ₂ sections.....	.85	8.00
100 24-lb. regular 4-row for 4 x 5 x 1 ³ / ₈ sections.....	1.20	11.50
150 12-lb. regular 3-row for 4 x 5 x 1 ³ / ₈ sections.....	.90	8.50

HONEY-CANS

As in previous seasons, we have prepared a very large and complete stock of honey-cans in our warehouse, ready for immediate shipment to you. Our honey-cans this season are the product of the largest independent can-manufacturing company in the United States, and are warranted to be the best grade possible to procure. Every can and case is fully guaranteed to give absolute satisfaction. The boxes are of the very best material that can be obtained for packing honey-cans, being strong and substantial, and securely nailed with cement-coated nails.

Prices quoted on application. Full line of Root's Beekeepers' Supplies always on hand.

Toepperwein & Mayfield Co.

San Antonio, Texas

PRINTYPE

Receives the Plaudits of the Public

Vigilant Protector of People's Eyesight Hailed as a Benefactor by Many Thousands of Enthusiastic Admirers. "Officer Printype" Responds with Becoming Modesty.

Officer Printype says: "I am overwhelmed by the ovation which has greeted my appearance in your midst. I am simply doing my sworn duty in ridding the Business and Financial Districts of the Bad Characters that for years have made Typewriters a menace to your eyesight. I have mercilessly exposed and relentlessly pursued these dangerous Typewriter Types, which are responsible for more cases of Defective Vision than all other causes combined.

"Report direct to my Headquarters, in the Oliver Typewriter Building, Chicago, any machine whose type is violating the Optical Law and I'll have the offender haled before the Court of Public Opinion."



Printype — **OLIVER** Typewriter

Printype is owned and controlled exclusively by The Oliver Typewriter Company

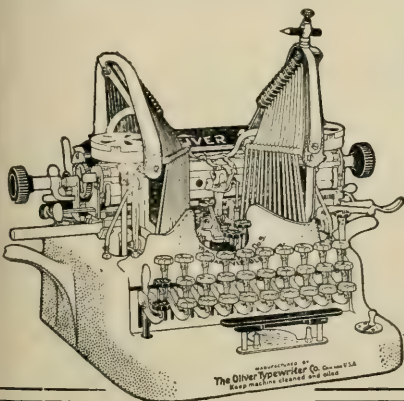
America rings with praise and applause for Printype. This superb new typewriter type has attracted more attention than any typewriter innovation brought out in recent years.

Hundreds of thousands of people have seen this new type and wondered what it was that made Printype Correspondence seem like a spoken message. There's virility, strength and charm in Printype correspondence. There's refinement and "class" and style.

Not because of its novelty—it's inherent in the type!

A Vast Improvement

Printype is designed in shaded letters and numerals, like the type in which books and magazines are printed. It is book type transformed and adapted to modern typewriter requirements.



This radical departure from the old style "outline" letters makes it possible to produce on *The Oliver Typewriter*, a page of manuscript as clear and attractive as that of the finest book. The Oliver is the first and only typewriter that successfully prints print!

The Primary Reason

Printype resulted from our discovery that "outline" type, with its sameness, due to absence of shading, was harmful to the eyes.

The Silent Test

For months, without any advertising, we put hundreds of Printype Oliver Typewriters into actual service, in many diverse lines of business. We wanted the public's verdict. It came in a burst of admiration and a flood of orders that proved Printype a brilliant success.

Printype letters, wherever seen, excited the keenest interest. Business men who received their first Printype letter almost invariably answered, post haste—*"Where did you get that type?"* Thus Printype conquered the country without firing a single shot.

Price Not Advanced

The Printype Oliver Typewriter sells for \$100. You can pay at the rate of 17 cents a day. The "Printyper" is our latest and best model. The new type adds 25 per cent to the value, but not one cent to the price. A small cash payment brings the machine. (248)

Send Printype Coupon Now!

If you or any one in whom you are interested contemplate going to a Business College, write us first and we will, without charge, supply you with some valuable information on the subject.

The Oliver Typewriter Company,
116 Prospect St., Cleveland, Ohio.

Tell Officer "Printype" to write me a letter and send me his Book. I am interested.

Name.....

Address.....

.....

ROOT'S BEEKEEPERS' SUPPLIES . . .

You may have a catalog of supplies; but if you haven't ours you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Extensive and prosperous beekeepers are writing us frequently letters like the following:

The A. I. Root Co.:—We have bought bees almost every season for a great many years, and in this way handled several styles of frames; but to date we have not found any thing that compares with your metal-spaced frame for an all-round fixture.

For the benefit of students we have experimented with other styles of metal spacers, and in every case imperfections were soon discovered. Your metal-spaced frame has many good points to recommend it, and we began using this style of frame the first season it was put on the market, and have more than 20,000 of them in use now.

For strength and rapid manipulation, this frame has no equal. We use it alike in brood-chamber and extracting-supers, as with our plan of management a frame may be in the brood-chamber at one time and in the super at another, or the reverse may be true.

Janesville, Minn., March 8, 1913.

THE HOFMANN APIARIES, per E. L. Hofmann.

Our catalog also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in this line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

BRANCH OFFICES

New York, 139-141 Franklin St.	Chicago, 213-231 Institute Pl.
Philadelphia, 8-10 Vine St.	Des Moines, 565 W. 7th St.
St. Paul, 1024 Mississippi St.	Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W.	
Mechanic Falls, Maine	

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Agricultural
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Cleanings in Bee Culture



VOL. XLI. JUNE 15, 1913, NO. 12.

Some of our subscribers may find it convenient to club their magazine orders, and we shall be glad to handle such for them. Below we give a few of our special clubbing offers. If you are especially interested in a clubbing rate on some other magazine not mentioned, write for price.

GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$2.40
YOUTH'S COMPANION,	1 year \$2.00,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	All for \$2.00
THE GARDEN MAGAZINE,	1 year \$1.50,	
GARDEN PROFITS, 250-page book,		
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.50
PICTORIAL REVIEW	1 year \$1.00,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.40
The WEEKLY ENQUIRER (Cincinnati),	1 year \$1.00,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.25
WEEKLY INTER OCEAN (Chicago),	1 year \$1.00,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.50
THE FRUIT-GROWER,	1 year \$1.00,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.50
BETTER FRUIT,	1 year \$1.00,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.50
AMERICAN POULTRY JOURNAL,	1 year \$1.00,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.15
FARM POULTRY,	1 year .50,	
GLEANINGS IN BEE CULTURE,	1 year \$1.00,	Both for \$1.25
FARM JOURNAL,	5 years \$1.00,	

Because of additional postage required, these offers do not apply in Canada nor foreign countries, and additional postage is required on the Farm Journal when mailed to Philadelphia subscribers.

All orders handled very promptly, and at a minimum of trouble to yourself. Subscriptions to begin with the first possible issue unless otherwise stated.

The A. I. Root Company, Medina, Ohio

RUSH-ORDER PRICE LIST**"FALCON" Beekeepers' Supplies**

Beeway Sections— 250, No. 1, \$1.60; No. 2, \$1.40.
 " " 500, " 2.75; " 2.50.
 " " 1000, " 5.50; " 5.00.
 " " 5000, " 23.75; " 21.25.

Plain Sections, 25c per 1000 less.

Dewey Foundation-fastener, each, \$1.25; by mail, \$1.50.

Light Section Foundation, per pound

Light Brood Foundation, per pound

Hoffman Brood-frames,

No. 14 one-story Dovetailed hive, cover, body, bottom, frames, 8-frame

1 lb., 65c; 5 lbs., 64c; 50 lbs., 59c

1 lb., 58c; 5 lbs., 57c; 50 lbs., 52c

10, 35c; 100, \$3.00

1, \$1.50; 5, \$7.00; 10, \$13.50

1.60 7.50 14.50

Dovetailed Supers complete without sections and starters—

No. 2, 4½x1½ sections

No. 2B, 4½x1½ sections

No. 2F, 4x5 sections

8-frame: 5, \$2.50; 10, \$4.80

10-frame: 5, 2.75; 10, 5.30

Ideal Bee-veil, 65c; by mail, 75c

Untested Italian Queens, one, \$1.00; six, \$5.50.

Standard Smoker, 85c; by mail, \$1.10

Tested Queens, one, \$1.50; six, \$8.50

DEALERS EVERYWHERE.

Red Catalog, Postpaid.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. CO., FALCONER, N. Y.

Where the good bee-hives come from

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time"
 It Pays to Buy **LEWIS BEEWARE**—Always the Same—Always Standard

Send for Annual Catalog which will tell you who is your nearest Distributor.
 G. B. Lewis Company, Watertown, Wis.



Established 1885

We carry an up-to-date line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
 High Hill, Montgomery Co., Mo.

HOW FAR CAN A BEE

SEE?

That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think! The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. 10c a single copy.

Edward F. Bigelow, Editor,

The Agassiz Association, Inc.

ARCADIA:

Sound Beach, Connecticut

P-O-R-T-E-R

(TRADE MARK)



**BEE
 ESCAPE**

SAVES { TIME
 HONEY
 MONEY } AT ALL
 DEALERS

Each, 15c; Dozen, \$1.65, postpaid

If your dealer does not keep them, order from factory, with complete instructions.

R. & E. C. PORTER, Mrs.

Box 7, LEWISTOWN, ILLINOIS, U. S. A.

Comb Honey Producers! Send for illustrated circular of new Rauchfuss Combined Section Press and Foundation Fastener. Sold with guarantee to give satisfaction, and delivered anywhere in U. S., on remittance of \$3.00.

The Colorado Honey Producers' Assn., Denver, Colo.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 2.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 3.—Three-fourths of the total surface must be filled and sealed.

No. 4.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—Fancy and No. 1 white comb, 16 to 17; fancy white, 11 to 12. Beeswax, 30.

Boston, June 6.

BLAKE-LEE CO.

INDIANAPOLIS.—Market is now practically bare of fancy white comb honey. No. 1 white is selling at 16 to 17; amber comb is in slow demand, and at varied prices. Best extracted sells at from 11 to 12 in five-gallon cans, according to quantity. Beeswax is in good demand, and producers are being paid 30 cents cash or 32 in trade.

Indianapolis, June 6.

WALTER S. POWDER.

ZANESVILLE.—As the supply trade is now on in full force the honey business is in a measure in the background. So far no receipts of new crop are reported, and old stocks are pretty well depleted. Best grades of white comb still command 18 to 19 cents; white extracted, 10 to 11. For beeswax, producers are receiving 29 to 30 cts. cash; two cents more in exchange for bee supplies.

Zanesville, June 9.

EDMUND W. PEIRCE.

NEW YORK.—There is nothing new to report. Some few little straggling lots of comb honey are still arriving, and selling at from 14 to 16 for No. 1 and fancy white, lower grades at from 12 to 13. Extracted is quiet. Heavy shipments are arriving from the West Indies, and as the demand is dull, prices are declining. We are now receiving new Southern honey, and the demand for this also has been very quiet up to now. Beeswax steady at 30 to 31.

New York, June 5.

HILDBRETH & SEGELKEN.

**30 DISTRIBUTING
HOUSES**

FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributer. G. B. Lewis Company, Watertown, Wis.

Now, Then, for Your Early Bee-supply Orders!

Send us a list of the Bee Supplies you want.
Our prices will astonish you.
Also send us your old combs.
We will render your wax and save you money.
Write for particulars.

THE FRED W. MUTH CO.

"The Busy Bee Men"

204 Walnut Street

Cincinnati, Ohio

An Active Season is Here

A carload of perfectly new goods is just on hand from the factory, and another car is expected any day, and the factory has booked us for four cars. This brings up our assortment so that we can now furnish almost any thing listed in the catalog at once.

Hives should be ordered at once if they are to be ready for swarms. Frames, and other inside fixtures too, should be put together now.

If you are wanting any special goods, orders should be made at once. Other cars are coming regularly from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

The mailing of our new catalog was completed some time ago. If you are not on our mailing list send us a postal-card request for this catalog.

If you want to buy in quantities considerably larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder—the best in the market. Write for our catalog.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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CHICAGO.—Very little doing in honey of any kind. Some No. 1 to fancy white comb honey would sell readily on this market at 17 to 18 cts. per lb. Beeswax also unchanged.

Chicago, June 4.

R. A. BURNETT & Co.

DENVER.—No more comb honey to offer. We quote extracted honey in a jobbing way at the following figures: White, 9; light amber, 8; strained, 6¾ to 7. We pay 28 cts. per lb. in cash and 30 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, June 6. F. RAUCHFUSS, Manager.

ST. LOUIS.—Since our last we have nothing new to report in the honey market. Trade is limited, and the prices are nominal as quoted heretofore. We quote fancy white comb honey at 16 to 17; No. 2 white, 15; light amber, 13 to 14; by the case, fancy white comb honey, \$3.65 to \$3.75; No. 2 white, \$3.25 to \$3.40; amber, \$2.75 to \$3.10, according to quality. Dark or broken honey is unsalable. Extracted honey, Southern, in barrels and half-barrels, for choice light amber, 6½; dark, 6; in five-gallon cans, one-half cent higher for the better grades. Dark honey is not wanted in five-gallon cans. California, Utah, and Colorado honey, white, brings 9 to 9½; light amber, 8½, all in five-gallon cans. Beeswax is in good demand at 31½ cents for prime; inferior and impure sells for less.

St. Louis, June 6. R. HARTMANN PRODUCE CO.

ANNUAL TRAVEL MAGAZINE; "WATERWAY TALES"
PUBLISHED BY D. & C. LINE, SENT TO YOU FREE.

The latest contribution to the literature of travel is the 250-page book issued by the D. & C. line. It contains detailed description of new steamer City of Detroit III, several interesting stories, and is beautifully illustrated with fine halftones of scenes along the D. & C. Coast Line to Mackinac. Sent anywhere upon receipt of ten cents to prepay postage. Address DEPT. W., D. & C. NAVIGATION CO., Detroit, Mich.

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The SAVINGS DEPOSIT BANK COMPANY

Medina, Ohio

Under Ohio State Supervision.

. . . ROOT'S . . .

POWER HONEY - EXTRACTORS

Our new catalog is full of information about these labor-saving machines. With the difficulty of getting competent help, the power extractors are being sold largely in this and foreign countries, and the present demand is far greater than ever before. Read what a California producer says in a letter to a disinterested party, which we are permitted to see and publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root Automatic extractor, as I believe it is as near perfection as can be. This machine runs so easy that a few turns to get it up to speed is all that is necessary; and the men, while using the No. 17, which I formerly had, could average only 1000 lbs. per day, while with this machine they can average 2000 lbs. with but one additional man. No apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, and financially to the honey-producers' interests.

Elk Grove, Cal.

B. B. HOGABOOM.

For full particulars see our new catalog

THE A. I. ROOT COMPANY, MEDINA, OHIO

New York, 139-141 Franklin St. Chicago, 213-231 Institute Place Philadelphia, 8-10 Vine St.
Des Moines, 565 W. 7th St. St. Paul, 1024 Mississippi St. Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W. Mechanic Falls, Maine
Distributing Depots in many large centers

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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Twenty-five cents per agate line, flat. Fourteen lines to the inch.

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RUSH ORDERS

BY MAIL.—Has your "forgettery" been working? And right this minute you need foundation or other items. See page 1 of our catalog, and it gives parcel-post rates on various articles.

BY EXPRESS.—Larger shipments than can go by mail we can rush out at once. Parcel-post and express orders receive our first attention.

BY FREIGHT.—Our rule is "ship same day the order is received," and we break it only when absolutely necessary. Notice that Lansing is the railroad center of Michigan from which freight shipments can be delivered quickest.

And we fill all orders with Root's goods. Just remember that too. Send for catalog. Beeswax wanted.

M. H. HUNT & SON, LANSING, MICH.

OPPOSITE LAKE SHORE DEPOT.

FRUIT-GROWERS!

Send 10 names of fruit-growers and 10 cents, and get "The Southern Fruit Grower" four months. Tells all about fruit-growing, gardening, poultry-raising, etc., in the South. Contains from 32 to 40 pages each month. Address

THE SOUTHERN FRUIT GROWER
Dept. BC, Chattanooga, Tenn.

BEES AND SUPPLIES

You will soon need a bill of supplies. Let us quote you before placing your order. We please thousands, why not you? Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.



LINE-BRED

CARNIOLAN Queens!

Carniolans winter with their colonies most populous, build up fast in the spring, enter supers readily, cap their honey very white, are gentle, and no more inclined to swarm than Italians if properly managed.

Untested, \$1.00; dozen, \$9.00. Tested, \$1.50; dozen, \$12.00. A limited quantity of bees by the pound, nuclei, and full colonies by the end of June. Ask for prices.

ALBERT G. HANN, PITTSSTOWN, NEW JERSEY
Carniolan Queen Breeder



Am now shipping Untested Queens from My

Celebrated Pedigreed Strain

My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLEY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States. Never had foul brood.

Swarthmore Apiaries,
Swarthmore, Pa.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

PROMPTNESS, LOW FREIGHT, and BEST PRICES are our motto. Satisfaction guaranteed. Think of it! our large **THREE-STORY WAREHOUSE**, right in the heart of the **CITY**, only 5 city blocks from ten of the largest **TRUNK RAILROAD SYSTEMS** in the world, and each trying to beat the other in prompt deliveries, gives us service no other agent enjoys. Even the **FACTORY** itself can't give such railroad service. This, all coupled with practical beemen to handle orders, insures against errors in packing.

WE HANDLE ROOT'S GOODS EXCLUSIVELY, and our warehouse is loaded from cellar to garret. Delays here in waiting for goods to arrive are very infrequent. Write for **SPECIAL PRICES** IN QUANTITIES, sending us a list of your wants. Free catalog for the asking. **BEESWAX** always wanted.

CHICKEN FEED OF ALL KINDS, at jobbers' prices. Car a week.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.

"Griggs is always on the job."



**"If Goods are wanted Quick,
send to Pouder."**

Bee Supplies!

When you are in urgent need of bee supplies you will likely consider two details—quality and promptness. For about a quarter of a century I have handled the Root quality of goods, shipping from Indianapolis at the factory schedule of prices. I believe it is generally admitted that as to material, workmanship, and accuracy, their equal is not to be had elsewhere. An immense stock on hand at all times, and no old or inferior goods offered at any price. Nearly every order is filled within a few hours after arrival, and you will agree with me that this feature is the finest advertising that I have ever been able to place on my house. We have so many railroads and express companies at our command that shipping promptly from here is not a hardship. The parcel post is a boon to all of us, and these packages are taken up by Uncle Sam three times a day.

Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and I should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

Notice to Beekeepers

My new location in the Airdome building on South Sixth St. is even more accessible than my former location, and affords improved facilities for the prompt handling of orders.

I now have as fair a line of brand-new goods as the crowd of orders at the Root factory will allow.

The damaged stock here has been disposed of with the exception of a few odds and ends. I have been too busy to compile a list; but if you will name any item you can use in slightly damaged ware, it will be supplied if possible.

I take this opportunity to express my appreciation of the liberal patronage accorded me hitherto, and of the many kind expressions of sympathy from my friends.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

BEEKEEPERS

Your busy season is close at hand. Get wise, and place your orders with the supply dealer who will save you money and serve you best with Root's quality sections, frames, foundation, smokers, extractors, etc. I can serve you now without delay. My 1913 catalog tells you all about these things; besides, it contains a lot of information to those interested in bees. Special attention given to the breeding of three-banded Italian bees and queens. Catalog free.

EARL M. NICHOLS

Lyonsville, Massachusetts

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, \$1.00; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c. **E. E. MOTT, Glenwood, Mich.**

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25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLaehlen Building, Corner Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts

Patent Counsel of The A. I. Root Co.

Boston is the Shipping Center of New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR

"FALCONER"

Write for discounts--we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

Our HAND-MOORE STRAIN 3-BAND ITALIANS

Are the best honey-gatherers. They spoil our white-clover honey by mixing it with red-clover. Record tongue reach 23-100 of an inch. Breed strictly for business. Untested, 75c; 12 for \$8.00; 50 for \$25.00. Select mated \$1.00 each. Virgins, 40c each, or \$4.00 per doz.

LATSHAW HONEY COMPANY

CARLISLE, INDIANA

Honey Wanted

CO-OPERATION means buying right and selling right. We are a co-operative association, and sell the best bee-supplies obtainable at the right prices. It will pay Western beekeepers to send for our illustrated catalog.

The Colorado Honey Producers' Assn., Denver, Colo.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad--Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributer. G. B. Lewis Company, Watertown, Wis.

ROOT'S BEEKEEPERS' SUPPLIES . . .

You may have a catalog of supplies; but if you haven't ours you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Extensive and prosperous beekeepers are writing us frequent letters like the following:

The A. I. Root Co.:—We have bought bees almost every season for a great many years, and in this way handled several styles of frames; but to date we have not found any thing that compares with your metal-spaced frame for an all-round fixture.

For the benefit of students we have experimented with other styles of metal spacers, and in every case imperfections were soon discovered. Your metal-spaced frame has many good points to recommend it, and we began using this style of frame the first season it was put on the market, and have more than 20,000 of them in use now.

For strength and rapid manipulation this frame has no equal. We use it alike in brood-chamber and extracting-supers, as with our plan of management a frame may be in the brood-chamber at one time and in the super at another, or the reverse may be true.

Janesville, Minn., March 8, 1912.

THE HOFMANN APIARIES, per E. L. Hofmann.

Our catalog also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in the line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

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New York, 139-141 Franklin St.	Chicago, 213-231 Institute Pl.
Philadelphia, 8-10 Vine St.	Des Moines, 565 W. 7th St.
St. Paul, 1024 Mississippi St.	Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W.	
Mechanic Falls, Maine	

Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory

MEDINA, OHIO



QUEENS!

Real queens. We have them for you. We are large producers of comb honey, operating from 500 to 1000 colonies of bees all the time. If you haven't a first-class queen you can not expect crops of honey. Would you not prefer to purchase your queens from a breeder that rears queens to make honey crops with, rather than from one who is rearing them exclusively for the market, regardless of whether they produce honey or not? We are in position to know whether our breed of three-band and golden Italians are honey-producers. We have had honey-houses at several points to exhibit our honey, always taking first prize. Walter S. Pouder, of Indianapolis, in 1907, found three uncapped cells out of 68 24-lb. cases of fancy white honey. From others we have had letters equally good. Untested, 85 cts.; select untested, \$1.00. Warranted, \$1.10; tested, \$1.50.

Write for our large bee and queen circular for prices by the nuclei, pound, etc.

The Penn Co., Penn, Miss.
Lowndes County

Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,

Queen-breeder.

Route 1, Morgan, Ky.

FAMOUS QUEENS direct from ITALY!

Bees more beautiful, more gentle, more industrious; the best honey-gatherers. Universal Exposition, St. Louis, Mo., 1904, the highest award. Extra breeding queen, \$3.00; selected, \$2.00; fertilized, \$1.50. Write.

Hartford, Conn., April 20, 1907.
Please find enclosed \$11.00 for six queens. I hope to get as good ones as I received before, and if I do I shall want more.

A. W. YATES.

Norwichtown, Conn., Sept. 14, 1912.

I send you money order for \$3.00. I wish two of your fertilized queens. I have seen some of your bees owned by Mr. Yates, and I like them.

ALLEN LATHAM.

ANTHONY BIAGGI, Pedevilla near Bellinzona, Italy
Please in writing mention GLEANINGS.



ITALIAN BEES AND QUEENS

Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50. Try me for rush order.

J. L. FAJEN, . . . STOVER, MISSOURI

QUEENS AND BEES

An improved superior strain of Italians is what **QUIRIN RAISES**. Our stock is Northern bred and hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis., and July 30th (of same year) he wrote us saying they did just splendid, as at that date they had already filled their supers, and that he would have to extract them. We have files of similar testimonials.

Prices before July:	1	6	12
Select queens	\$ 1 00	\$ 5 00	\$ 9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00		
Golden breeders	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Three-comb nuclei, no queen	3 50	20 00	35 00
Colonies on 8 frames, no queen	6 00	30 00	
One pound bees, no queen	2 00	10 00	
Half pound bees, no queen	1 50	7 00	

Add price of queen wanted with bees. Bees by the pound, nuclei, and colonies; if wanted before June 1, add 25 per cent. **QUEENS NOW READY**. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO

W. H. LAWS

is again ready to fill your orders for queens the present season. Law's Red-clover Italians are as good as can be had.

One firm who bought over 1100 queens from me in 1912 says, "Your queens are very satisfactory." We are booking orders now, and we are going to do our level best to mail all queens by return mail when so ordered. My bees are absolutely clean and free from all disease.

Queens sent out under the usual guarantees. Prices: Single queen, \$1; six for \$5. Breeding queens, none better, each, \$5.

W. H. LAWS, BEEVILLE, BEE COUNTY, TEXAS

Taylor's Three-banded Italian Queens

are now Ready to go by Return Mail

We have hundreds of fine testimonials about our queens. Untested, \$1.00 each or \$9.00 a doz. Tested, \$1.25 each or \$14.00 a doz. Select tested, \$1.50 each or \$16.00 a doz. Breeders, the very best, from \$3.00 to \$5.00 each. No better queens raised. Send all orders to

J. W. Taylor & Son, Beeville, Texas

Queens reared scientifically from breeders perfected by years of elimination of all undesirable traits, are far better and more prolific than the ones hatched from a natural swarm of superseded cells. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating. We have never had any disease in or near our apiary. If you are interested, write us for booklet. Untested queens, 75 cts.; dozen, \$8.00.

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Are you prepared for the increase? Be forehanded, and have your hives all ready. We carry a large line of hives and other goods. Our catalog for 1913 will be sent on request.

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IT PLEASES

FRIEND DADANT:—Say, do you folks know that the Old Reliable is just more than forging to the front? Yours truly,

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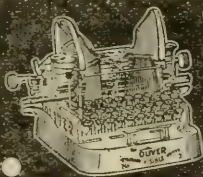
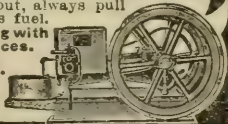
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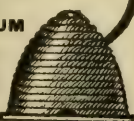
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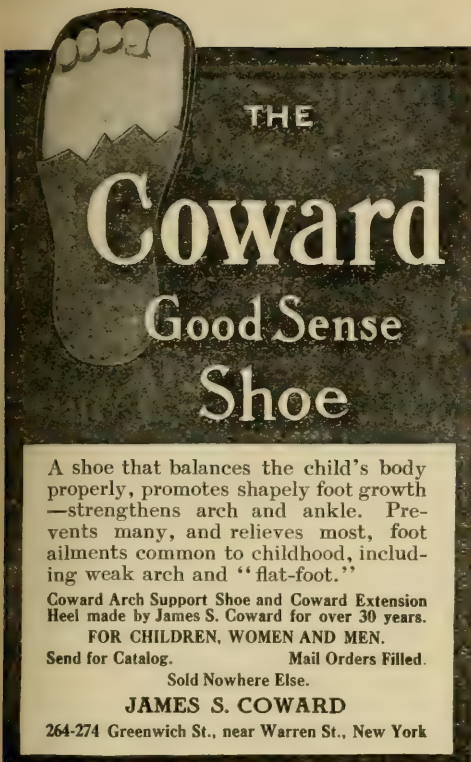
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If You Need Queens By Return Mail

We can fill your order. Three-band Italians, gentle, and the best of honey-gatherers. Queens large and prolific. Tested, \$1.00 each; \$12.00 per doz.; untested, 75 cts.; \$8.00 per doz. Send for price list.

J. W. K. SHAW & CO.,
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Miller's Strain of Red-clover ITALIAN QUEENS

By Return Mail after June 5 to 15 or order returned

Bred from superior breeders for business; gentle; no better hustlers; bees roll honey in; three-banded; **Northern-bred**: hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored long-tongued red-clover strains. Untested, \$1.00, six, \$5.00; dozen, \$9.00. Select untested, \$1.25; six, \$6.00; dozen, \$11.00. Satisfaction guaranteed.

Isaac F. Miller, a queen specialist and breeder for sixteen years, previously of Brookville, Rt. 2, Reynoldsville, and lately of Oil City, Rt. 2, Pa., is agent and breeder for E. L. Miller. Send all orders to

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Pure Golden Italian Queens

Better than Last Year

Mated, \$1.00; select mated, \$1.50; select tested, \$3.00; breeders as high as \$50.00. Send for booklet, and get the best . . . My breeders produced over 200 pounds of surplus each last year. Try them and see what they will do for you.

GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

BEESWAX WANTED!

Recent demand for comb foundation has been good, and our stock of beeswax is running low. We offer for good average quality and prompt shipment 30 cts. per lb. cash, or 32 in trade, delivered at Medina. Shipments from the Pacific coast should be in barrels or boxes. From other Western points, pack in double bags to get the most favorable rate. Be sure to mark the shipment so it can be identified when it arrives, and send us a shipping receipt with a statement of gross, tare, and net weight shipped. This is important as it gives us something to check so as to determine whether any has been lost in transit.

The A. I. Root Company
Medina, Ohio

Convention Notices

The field meeting of the New Jersey State Beekeepers' Association will be held at the apiary of Mr. George Grover, near Trenton, N. J., June 25. The following is the program:

Reading of minutes.

The Improved Robber Cloth—*Demonstrated*, Dr. Cheney, Hoboken.

The Tube Escape and its Uses—*Demonstrated*, W. W. Case, Frenchtown.

Question-box.

Short Cuts in Finding Queens—*Demonstrated*, I. J. Stringham, New York; Dr. Cheney, Hoboken; C. H. Root, Red Bank.

My Winter Case and its Advantages, C. H. Root, Red Bank.

It is quite possible that Dr. Phillips will also be present, and talk on a live subject.

The main features of this meeting are to be the demonstrations and discussions.

Plans are being made to have the latest Ferguson uncapper demonstrated.

Lunch will be served at the apiary at a reasonable cost.

Trenton can be reached by the P. R. R., P. & R. R., and trolleys. The apiary is 20 minutes' trolley ride from State and Broad Sts., Trenton, on the Trenton-Lawrenceville line. Get off at Fairfield Ave., and follow the signs. Cars leave Trenton every 20 minutes.

New Egypt, N. J.

E. G. CARR, Sec.

The pound of bees and queen I purchased of you last July are coming along very nicely. They filled almost five Hoffman frames last fall, and wintered out on their summer stands. They are very gentle compared with the hybrids which I had.

St. Benedict, Pa.

W. H. BAUGHMAN.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Finest quality clover and clover-bass-wood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Sweet-clover honey, 7½ cts. per lb. in 60-lb. cans; 2 cans per case, F. O. B. Cochrane, Ala. J. C. WEAVER, Cochrane, Ala.

100 business cards, envelopes, note heads or shipping tags printed and delivered for 55c; 500, 98c; 3000 gummed honey labels delivered, \$1.00. PEARL CO., Clintonville, Conn.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb, extracted honey, and beeswax. Write us. HILDRETH & SEGELKEN, New York.

WANTED.—White-clover or basswood extracted honey. Give lowest prices. D. H. WELCH, Racine, Wis.

We will pay the highest cash price for thoroughly ripened extracted honey. Write us, stating quality and quantity, with prices F. O. B. your station. SPENCER APIARIES, Nordhoff, Cal.

WANTS AND EXCHANGES

WANTED.—To solicit orders for white-sweet clover seed. WM. CRAIG, Luce, Mich.

WANTED.—To sell one, two, and three frame nuclei with untested queens, cheap. WM. ATCHLEY, Beeville, Texas.

WANTED.—To exchange one Universal talking machine for bees or queens. ORVILLE F. FRYE, Box 127, Linden, Wis.

Owing to ill health I will sell my interest in the Rocky Mountain Bee Co., amounting to nearly one-fourth, at a great bargain; or would trade for satisfactory property in lower altitude. This is a profitable investment for a good beekeeper. W. HICKOX, Forsyth, Mont.

On account of putting most of our bees into house-aparies we have for sale (or would exchange for honey) about 100 Root 10-frame chaff hives as good as new, all newly painted, for \$2.00 each, without frames, or would add Hoffman frames at Root prices. F. J. STRITTMATTER & WIFE, Rt. 1, Ebensburg, Pa.

REAL ESTATE

One ten-acre alfalfa farm, six-room house, 200 colonies bees; one 3 1-5 acre home, six-room house, 200 colonies bees. Both choice locations in all respects. W. H. CRAWFORD, Roswell, N. M.

FOR SALE.—At a bargain, 20-acre fruit ranch in the famous Wenatchee-Columbia River red-apple belt. Planted to standard winter apples, trees four years old. Will take bees and good location in South in part payment. For full particulars write J. D. YANCEY, Port Columbia, Wash.

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

Bee-ranch in south Texas for sale. Just out of city limits of San Marcos, a splendid location for an apiary or poultry-ranch—no bees near; splendid bee-range. Good market for all kinds of produce; nice modern cottage. One of the most healthful locations in Texas. If interested, address J. P. CALDWELL, San Marcos, Texas.

FOR SALE

A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. THOS. LITZ, Osceola Mills, Pa.

Second-hand 5-gallon honey-cans in good condition, 25 cts. per case. J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—Empty second-hand cans, two cans to the case, good as new; 25 cents per case. C. H. W. WEBER & Co., Cincinnati, O.

Several thousand 4¼ x 1¼ wide beeway sections; a bargain. Also a new super-foundation mill. Write ARTHUR RATTRAY, Almont, Mich.

FOR SALE.—Beekeepers' supplies; bees and honey. The only satisfactory hive for this climate. Write for circular. A. E. BURDICK, Sunnyside, Wash.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Texas.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

Bee supplies for all southern Idaho and east Oregon beekeepers, wholesale and retail. Give me a chance to figure your bill for 1913. Write for catalog. It will tell you the rest. C. E. SHRIVER, Boise, Idaho.

FOR SALE.—No. 15 Cowan reversible extractor, good as new, \$10; 10-inch foundation-mill, first-class condition, late pattern, \$20. Several hundred dove-tailed hives and supers in good condition at half the cost of new material in the flat. J. A. GREEN, Grand Junction, Col.

FOR SALE.—Best No. 1 sections, 1000, \$4.40; 2000, \$8.60; 3000, \$12.60; 5000, \$20.00; No. 2, 50 cts. less. Plain, 25 cts. less. Five white-pine hives and supers, \$7.25; ten-frame, \$8.00; 100 Hoffman frames, \$2.60. Best goods, lowest price. Catalog free. H. S. DUBY, St. Anne, Ill.

FOR SALE.—Two Hatch wax-presses, two solar extractors, two two-frame extractors for frames shorter than the Langstroth; one Daisy foundation-fastener; one Lewis fastener; one globe veil; one capping-melter; one gravity separator. These are practically new goods, and will be sold at 60 to 70 per cent of their original cost. LEON C. WHEELER, Barryton, Mich.

BEES AND QUEENS

Golden Italian queens, untested, \$1.20, after June 15. E. H. BUCKMAN, Chester, Pa.

Golden Italian queens, \$1.00 each; six for \$5.00. Warranted. J. B. CASE, Port Orange, Fla.

A specialty—two-frame nucleus with Italian queen, \$2.75. J. B. MARSHALL, Big Bend, La.

Queens by return mail. Mismatched Italians 40 cts. each or \$4.00 per doz. LATSHAW HONEY CO., Carlisle, Ind.

FOR SALE.—A few fine Italian queens from best strains; untested, 60 cts. each. D. E. MEYER, Lowell, Ark.

FOR SALE.—Fine Italian queens, three-banded, prolific, hardy, gentle. Ready May 15. Untested, \$1.00 each. J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

Queens by return mail, untested, \$1.00 each; six, \$5.00; \$9.00 per dozen. Italians and Carniolans. WM. ATCHLEY, Beeville, Bee Co., Texas.

FOR SALE.—Golden Italian queens, tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00. D. T. GASTER, Rt. 2, Randleman, N. C.

Hardy northern-reared queens of Moore's strain of Italians, ready June 15. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. P. B. RAMER, Harmony, Minn.

I will sell untested Italian queens at 60 cts. each, 75 cts. per dozen; no disease. Safe arrival guaranteed. EDWARD O. MESERVE, Ventura, Cal.

Virginia three-banded Italian queens, untested, 75 cts.; tested, \$1.00. All dead queens replaced free. Ready May 15. S. CLICK, Box 16, Rt. 2, Mt. Jackson, Va.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address DEROY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—Italian queens now ready, safe arrival and pure mating guaranteed. Select untested, \$1.00 each. All orders will receive our prompt attention. E. A. SIMMONS, Greenville, Ala.

Day-old virgin queens will please you. Good way to get fine Italian stock at low prices; 50 cts. each; \$5.00 per doz. Get my prices on full colonies. GEORGE H. REA, Reynoldsville, Pa.

FOR SALE.—Full colonies of Italian bees with young queen, \$6.00; nuclei, \$1.25 per frame; queen extra. Write for prices on queens. ARVIN, NUSBAUM CO., Meldrim, Ga.

Golden Italian queens of best strain, all cells built in strong colonies, no foul brood or other disease. Untested, \$1.00; tested, \$1.50. Cash with order. Booking orders now. BEN ROBINSON, Taylor, Tex.

Choice virgin queens, 40 cts. each; 3 for \$1.00; untested, 75 cts. each; tested, \$1.25; breeders, \$2.50. Italian, Carniolan or Caucasian. STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Phelps' Golden combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Virginia.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

FOR SALE.—After June 20, fine Golden Italian queens, 75 cts. each; 6 for \$4.00; few choice breeders at \$3.00 each. Cast with order. Good honey-gatherers. EDWARD REDDOUT, box 43, Lysander, N. Y.

Italian queens, gentle, three-banded stock. A new strain bred for honey-gathering ability. Untested queens, 75 cts. each; 12 for \$8.00; 50 for \$32.00. Two-frame nucleus, Danz. frames, with queen, \$3.00 each. H. C. SHORT, Winchester, Ohio.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed.

C. B. BANKSTON, Buffalo, Leon Co., Tex.

The two B's of quality. Italian bees and Sicilian Buttercups. For all that is best, unexcelled. Untested queens, \$1.00 each, six for \$5.00. Buttercup eggs from prize-winning pen, 15 for \$4.00; "A" pen, 15 for \$2.50; 30 for \$4.00.

H. WILLIAM SCOTT, Barre, Vt.

Queens from Georgia apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested, \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb, packed any size to suit customer. Prices and samples sent free. JOHN W. CASH, Bogart, Ga.

FOR SALE.—Italian queens, reared by best-known methods of a \$10 Doolittle breeder and select imported stock, mated to select drones. I guarantee queens to be A1 in every way. Virgins, 50 cts. each; untested, 75 cts; 12 for \$8.50; 24 for \$16.50. J. B. HOLLOPETER, Pentz, Pa.

Superior Italians.—I am propagating queens from selected breeders—Alley, Moore, and Pratt strains, mated in an apiary of 100 colonies, mostly finest Golden. Untested queens, \$1.00; two-frame nuclei with queen, \$3.00; full colony, eight-frame, bees and brood, in ten-frame Dovetailed L. body, with queen, \$6.50.

ISAAC F. TILLINGHAST, Factoryville, Pa.

FOR SALE.—Swarms! Swarms! ½ lb. young bees with untested Italian queens, shipped as 1½ lbs., \$1.75; 1 lb. young bees with untested Italian queen, shipped as 2½ lbs., \$2.25. F. O. B. here; 6, 10 cts. less each. This is the best way to increase and improve your bees. Safe arrival and satisfaction guaranteed. Circular free.

W. D. ACHORD, Fitzpatrick, Alabama.

Three-banded Italian queens and bees. Untested queens, 75 cts. each; six, \$4.25; twelve, \$8.00; tested, \$1.25 each; six, \$7.00; twelve, \$12.00. For select queens, add 25 cts. each to the above prices. Nuclei without queens, one-frame, \$1.50; two-frame, \$2.50; three-frame, \$3.00. For nuclei in quantity lots, and bees by the pound, write for prices and circular. ROBT B. SPICER, Wharton, N. J.

FOR SALE.—Three-banded Italian queens and packages. Best honey-gatherers. Satisfaction or your money back. No disease. Ready about April 1. One untested queen, 75 cts.; 6 for \$4.25; 12 for \$8.00. After April 15, ½ lb. bees, \$1.00; 1 lb., \$1.50; good weight; f. o. b. here by express. Add price of queen if wanted. These are young bees, so will live longer than those you have wintered.

W. D. ACHORD, Fitzpatrick, Bullock Co., Ala.

We will requeen our 2000 colonies this year with young queens bred from our best home and imported Italian stock. We offer the prolific year-old queens, removed from these hives, at 40 cts. each, \$4.20 per dozen; \$30.00 per 100. Untested queens, this year's rearing, 60 cts. each; \$6.50 per dozen; \$50 per 100. We breed for business, not looks. No disease; delivery guaranteed.

SPENCER APIARIES, Nordhoff, Cal.

Murray's famous North Carolina bred Italian queens (red clovers and goldens), for sale again. As good as the best; no foul brood known. They are as good honey-gatherers as can be obtained, and winter as well. My improved strain is carefully selected, and bred up from Moore's, Root's, and Davis' imported stock. Select untested, doz., \$9.00; one, \$1.00. Untested, one, 75 cts.; doz., \$8.00; tested, \$1.25. Select tested, \$1.50; extra select tested, \$2.00. Breeders, \$3.00 and \$5.00.

H. B. MURRAY, Queen-breeder, Liberty, N. C.

FOR SALE.—50 colonies of Italian bees; 60 new ten-frame hives and 300 frames, new and wired; one two-frame extractor; one extracting-house and fixtures, together with 250 acres of land, 100 or more open for cultivation; remainder is well covered with mesquite, catclaw, horsemint, and wild sunflower; in the midst of a large cotton-growing section; good well and windmill; house and outbuildings; all for \$50 per acre, or will sell the bees and fixtures for \$6 per stand. For further particulars address J. B. BOWDEN, Fall City, Texas.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

Fine mated homing pigeons, \$1.50 a pair, or will trade for bees. L. FRANCISCO, Mosinee, Wis.

HELP WANTED

Wanted at once, help in our apiaries. Give wages wanted; also age and experience, first letter. THE ROCKY MOUNTAIN BEE CO., Box B, Forsyth, Mont.

WANTED.—At once, assistant beekeeper. State age, experience, and wages. Four or five months' employment. J. H. STONEMAN, bx 264, Blackfoot, Ida.

WANTED.—Apiarist to go to Jonesville, La., for the rest of the season. Man with Southern experience preferred. Another man for my home yard. Permanent position.

H. C. AHLERS, Rt. 1, West Bend, Wis.

POULTRY

S. C. White Leghorns of quality, prolific layers of large snow-white eggs; 15, \$1.50. VALLEY CITY POULTRY FARM, Rt. 12, Grand Rapids, Mich.

FOR SALE.—Eggs for hatching from my prize-winning strain of Rose Comb Brown Leghorns—the best layers I ever owned, and I have tried them all. They are beauties, too. Per setting of 15, \$1.00. Satisfaction guaranteed.

W. O. ROUDAUSH, Hagerstown, Md.

Eggs from prize-winning single-comb Buff Orpingtons—2 special pens; Martz and Rogers strain, \$3.50 per 15; utility flock, free range, \$1.25 per 15; \$5.50 per 100. Also eggs from fawn and white Indian Runner ducks, scoring up to 94½; \$1.50 per 13; \$4.50 per 50. JAMES MCKENDRICK, Glenlussa Farm, Ernie, Iowa.

INDIAN RUNNER DUCKS

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.

C. O. YOST, Box D, Rt. 4, Winchester, Ind.

BEEKEEPERS' DIRECTORY

If you need queens by return mail, send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June \$1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

A. I. ROOT

VENTILATED SHOES, ETC.

After what I said about my "corncrib shoes" in GLEANINGS, p. 319, May 1, a lot of correspondence has come up, and I have been advised several times that similar shoes are for sale in most of the shoestores in our large towns and cities. Dr. Miller alludes to the matter on page 264, June 1. The principal objection that I have found so far to these shoes is that, when working in the garden or doing other similar kinds of work, dirt or small gravel is liable to get into these openings and oblige one to sit down once in a while and give his shoes and stockings a thorough cleaning. While walking on a pavement or on any fairly good road, there is no trouble of this kind. Putting on some different shoes when you are working in the garden, or, better still, going *barefoot*, makes it all right. If some shoe manufacturer who makes or handles these ventilated shoes will give us his address we will give him a free advertisement, and I think it will bring him a lot of trade, for there seems to be a world of people who are suffering from corns and hot feet, especially during hot weather, because their feet do not have a chance to "breathe." I have before mentioned that our great statesman Abraham Lincoln was in the habit of taking off his shoes when he sat down at his desk or attended to correspondence. The shoes I have mentioned came from R. T. Thomas' Sons, the drygoods men of Bradentown, Fla. The price was \$2.50 or \$3.50. I can not tell now just which. In these days of parcel post some manufacturer should be able to send them by mail at a reasonable price.

Later.—The following has been sent me by a subscriber. It was clipped from the *Chicago Inter-Ocean*:

CANAL ZONE FOOTWEAR.

The rope-soled slippers, with cloth uppers, known as Spanish alpargatas, and worn by practically all the European and colored laborers in the canal zone, are imported all the way from Spain in such quantities that they can be retailed at the low price of 20 cents a pair.

The European laborer wears them 12 months in the year on the isthmus, and over 1,000,000 pairs are sold annually by the commissary. Alpargatas are durable, and have been adopted by Isthmian bathers as the most convenient form of beach shoe.

Can some of our readers tell us where these Spanish alpargatas can be had? I for one want a dozen pairs at the above prices; then when I get them soiled or muddy I can throw them away and take another pair. I take it they can be sent by parcel post.

DASHEENS, DASHEEN FLOUR, ETC.

I told you last winter when I got that little bag of dasheen tubers by parcel post on Christmas eve I was happier over that little Christmas present from Uncle Samuel himself, than with any other Christmas present I could remember during the past seventy years. Well, now here comes another of my "happy surprises." Read the following:

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF PLANT INDUSTRY

FOREIGN SEED AND PLANT INTRODUCTION

Washington, D. C., May 17, 1913.

Mr. A. I. Root, Bradentown, Fla.:

We are sending to you to-day separately by mail a small package of flour made from the dasheen, the sub-tropical root crop which the Department is introducing into the Southern States. We shall be glad to have you try this flour in one or more of the ways suggested in the recipes which accompany it, and let us know your opinion of it.

Very truly yours,

R. A. YOUNG, Scientific Assistant.

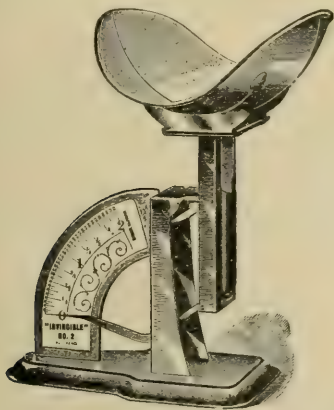
Well, friends, the reason I can not report on the dasheen flour in this issue is that it was sent, as you will notice above, to Bradentown, Fla., instead of Medina, Ohio. But I hope to get hold of the package, or a similar one, so I can report in the next issue. I have thirty or forty dasheen plants growing in my garden here in Ohio; but owing to the very cold May, and June so far, they are not making much progress. Last night, June 9, we had quite a little frost, and the Weather Bureau reports it as the coldest June 9th in 42 years, or since the Weather Bureau was started. Well, the dasheens stood as much frost as the tomato plants near by, and they stood a little more than some Hubbard squashes also near by; for while the squashes were killed dead, the dasheens were only a very few of them "singed" a little.

SPECIAL NOTICES

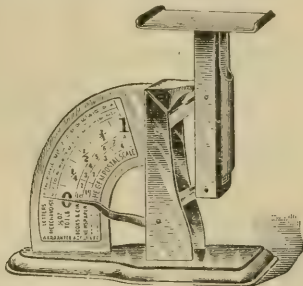
By OUR BUSINESS MANAGER

SCALES FOR WEIGHING COMB HONEY IN GRADING.

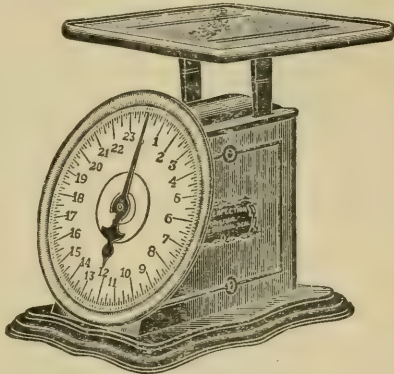
Under the Colorado rule is taken into account; and also by the laws of an increasing number of States packages of food must be marked with the net weight. For both these ends some form of spring scale is quickest to operate and handiest to use. We show above the Invincible No. 2, which is nickel plate with scoop, which is a very convenient form, and the one used by the Colorado Association; capacity, 2 lbs. We can furnish this at \$1.50 each; weight scant two pounds. Will mail it anywhere reached by parcel post at \$1.70 prepaid.



Here is another still smaller and very convenient for weighing individual sections or any thing else which does not exceed a pound. This is primarily



made for a postal scale, and the dial is graduated for different classes of mail matter, giving the amount of postage required in each class, as well as the weight by half-ounces in the large central figures. Price \$1.25. By mail \$1.30. Weight 9 oz.



SLANTING-DIAL SPRING SCALES.

We have sold for a great many years the Favorite Family scales of 12, 24, and 48 lb. capacity, and they have served a good purpose for light family weighing. Recently we discovered an improved form of this scale with slanting dial as shown above. This form of dial is much more convenient for reading when in the ordinary position on a counter or table. There are other improvements in this scale of equal importance. With the Favorite it was important to place centrally on the platform the article to be weighed if you wished to be quite accurate. With the Perfection slanting dial scale the weight is the same whether the article is central or at the edge. The price of the new scale is also lower. Either 12 or 24 lb. Perfection scale with silver-finished dial and black enameled frame and platform for \$1.50. Weight 3 lbs. May be sent parcel post.

"ABLE TO SAVE."

I have been permitted lately to read a few copies of GLEANINGS. I am not in the bee business, but your Home department and the way you hit whisky and the tobacco business just suits me. I thank God there is now and then a man who will stand by his convictions and is able to testify to the sanctifying power of God to save, and keeping a man saved, through faith in Jesus.

Dunbarton, Wis., Jan. 31. JAS. R. PERRIGO.

LEWIS BEEWARE MEANS

GOOD QUALITY. SCIENTIFIC WORKMANSHIP. CAREFUL PACKING. EFFICIENT SERVICE.

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

SPECIAL SALE!

Root's Goods Below Our Cost

Beekeepers will change their minds and use different kinds of supers all of a sudden. Our trade used, before section-supers, shipping cases, etc., while now nearly every beekeeper in our locality produces bulk comb honey, which, consequently, leaves us with a big stock of section supers on hand, which we are willing to sell very cheap just to dispose of them. They are all in the original packages, just as we received them from the factory, and there is absolutely nothing the matter with them, only we have hardly any more sale for them in our locality.

70 2 I-8.....	.37 each	60 2 P-8.....	.37 each
25 4 I-8.....	.50 each	100 4 I-10.....	.55 each
65 4 S-8.....	.50 each	80 2 I-10.....	.40 each
40 2 S-8.....	.37 each	35 4 S-10.....	.55 each
40 4 P-8.....	.50 each	75 2 S-10.....	.45 each
10,000 4 x 5 x 1 $\frac{3}{8}$ plain sections, 100 for .55; 300 for \$2.00; 1000 for \$3.70.			

SHIPPING-CASES

	With glass, in lots of 10	100
150 24-lb. regular 4-row for 4 $\frac{1}{4}$ x 1 $\frac{1}{2}$ sections.....	\$1.30	\$12.50
150 12-lb. regular 3-row for 4 $\frac{1}{4}$ x 1 $\frac{7}{8}$ sections.....	.90	8.50
150 12-lb. regular 3-row for 4 $\frac{1}{4}$ x 1 $\frac{1}{2}$ sections.....	.85	8.00
100 24-lb. regular 4-row for 4 x 5 x 1 $\frac{3}{8}$ sections.....	1.20	11.50
150 12-lb. regular 3-row for 4 x 5 x 1 $\frac{3}{8}$ sections.....	.90	8.50

HONEY-CANS

As in previous seasons, we have prepared a very large and complete stock of honey-cans in our warehouse, ready for immediate shipment to you. Our honey-cans this season are the product of the largest independent can-manufacturing company in the United States, and are warranted to be the best grade possible to procure. Every can and case is fully guaranteed to give absolute satisfaction. The boxes are of the very best material that can be obtained for packing honey-cans, being strong and substantial, and securely nailed with cement-coated nails.

Prices quoted on application. Full line of Root's Beekeepers' Supplies always on hand.

Toepperwein & Mayfield Co.

San Antonio, Texas

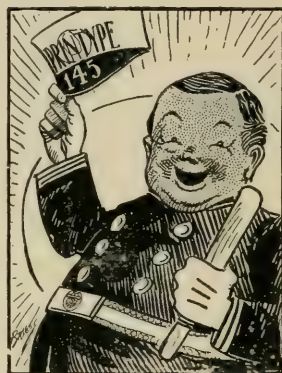
PRINTYPE

Receives the Plaudits of the Public

Vigilant Protector of People's Eyesight Hailed as a Benefactor by Many Thousands of Enthusiastic Admirers. "Officer Printype" Responds with Becoming Modesty.

Officer Printype says: "I am overwhelmed by the ovation which has greeted my appearance in your midst. I am simply doing my sworn duty in ridding the Business and Financial Districts of the Bad Characters that for years have made Typewriters a menace to your eyesight. I have mercilessly exposed and relentlessly pursued these dangerous Typewriter Types, which are responsible for more cases of Defective Vision than all other causes combined.

"Report direct to my Headquarters, in the Oliver Typewriter Building, Chicago, any machine whose type is violating the Optical Law and I'll have the offender haled before the Court of Public Opinion."



Printype — OLIVER Typewriter

Printype is owned and controlled exclusively by The Oliver Typewriter Company

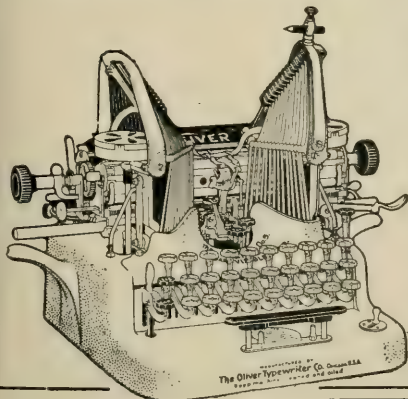
America rings with praise and applause for Printype. This superb new typewriter type has attracted more attention than any typewriter innovation brought out in recent years.

Hundreds of thousands of people have seen this new type and wondered what it was that made Printype Correspondence seem like a spoken message. There's virility, strength and charm in Printype correspondence. There's refinement and "class" and style.

Not because of its novelty—it's inherent in the type!

A Vast Improvement

Printype is designed in shaded letters and numerals, like the type in which books and magazines are printed. It is book type transformed and adapted to modern typewriter requirements.



This radical departure from the old style "outline" letters makes it possible to produce on *The Oliver Typewriter*, a page of manuscript as clear and attractive as that of the finest book. The Oliver is the first and only typewriter that successfully prints print!

The Primary Reason

Printype resulted from our discovery that "outline" type, with its sameness, due to absence of shading, was harmful to the eyes.

The Silent Test

For months, without any advertising, we put hundreds of Printype Oliver Typewriters into actual service, in many diverse lines of business. We wanted the public's verdict. It came in a burst of admiration and a flood of orders that proved Printype a brilliant success.

Printype letters, wherever seen, excited the keenest interest. Business men who received their first Printype letter almost invariably answered, post haste—"Where did you get that type?" Thus Printype captured the country without firing a single shot.

Price Not Advanced

The Printype Oliver Typewriter sells for \$100. You can pay at the rate of 17 cents a day. The "Printyper" is our latest and best model. The new type adds 25 per cent to the value, but not one cent to the price. A small cash payment brings the machine. (248)

Send Printype Coupon Now!

If you or any one in whom you are interested contemplate going to a Business College, write us first and we will, without charge, supply you with some very valuable information on the subject.

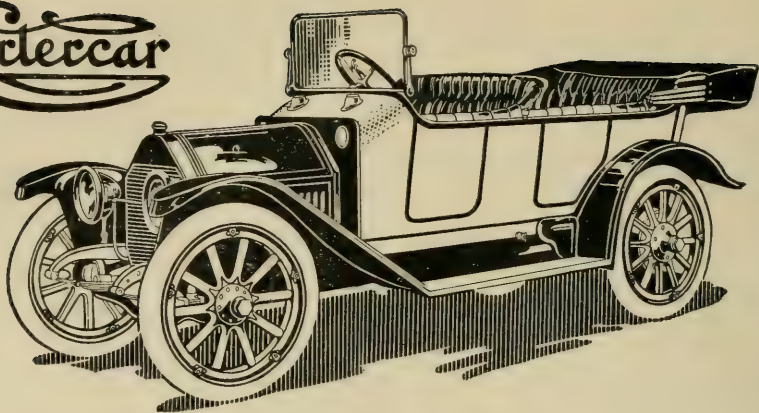
The Oliver Typewriter Company,
116 Prospect St., Cleveland, Ohio.

Tell Officer "Printype" to write me a letter and send me his Book. I am interested.

Name.....

Address.....

.....



Easy Riding— Double Tire Mileage!

You enjoy a Cartercar every mile of the way, over all kinds of roads, because it does not jerk nor jar. In changing speeds you simply move a lever forward or backward and change instantly and noiselessly from one speed to any other. There are unlimited speeds too.

This same feature also prevents wear on all parts—and especially on tires. Many owners tell us that they get twice the usual mileage. Just think what this means to you in your upkeep expense bills.

Gearless Transmission

A Cartercar has no gears in the transmission—no clutch. It is simple—so simple that it is trouble-proof. You have power to climb 50 per cent grades—unlimited speeds—which means service that you can not possibly get from any other car. If you want the best possible value from the money you invest in your car then you want the Cartercar. Let us prove these statements to your own satisfaction.

Cartercar Company, Pontiac, Mich.

MODEL 5A—Five passenger Touring Car. With electric starting and lighting system and complete equipment \$1700

MODEL 5B—A big, classy Roadster. With electric starting and lighting system and complete equipment \$1600

Gleanings in Bee Culture

VOL. XLII.

JULY 1, 1913

NO. 13

TAKE ONE OF THESE

Special Offers on Cleanings in Bee Culture

if you want to get more profit and pleasure from your bees. You have read on the preceding page of the extra value we propose to give to readers of GLEANINGS IN BEE CULTURE through 1913. You know that our regular subscription price is \$1.00 per year (24 semi-monthly numbers). These combination offers afford still greater value.

Gleanings in Bee Culture

(ONE YEAR)

“

{ with the A B C and X Y Z of Bee Culture
the leading text-book on beekeeping. } **\$ 2.50**

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{ with Dr. Miller's Fifty Years Among the
Bees. } **\$ 1.50**

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{ with W. Z. Hutchinson's Advanced Bee
Culture. } **\$ 1.50**

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{ with T. B. Terry's great book, How to Keep
Well and Live Long. } **\$ 1.50**

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{ with Milo Hastings' book on practical poul-
try culture, The Dollar Hen. } **\$ 1.50**

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{ with the new revised edition of The A B C
of Potato Culture, by T. B. Terry and A. I.
Root. } **\$ 1.00**

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{ with your choice of any of the following
books from the GLEANINGS library: Town-
send Bee-book, Doolittle's Year's Work in
an Out-apiary, Alexander's Practical Bee
Culture, Hand System of Swarm Control,
Natural History of the Honeybee. } **\$ 1.00**

“

{ with an Untested Italian Queen. (Queen
to be mailed at our convenience during the
season, when we have a surplus. } **\$ 1.50**

“

{ with a Root Standard Smoker (tin); diam-
eter of the barrel $3\frac{1}{4}$ inches. One of the
best smokers made, both in principle and
construction. } **\$ 1.75**

“

{ with a No. 2 Bee-veil. This veil is made of
cotton tulle with silk tulle face, and is ad-
justable to any medium-sized hat. It has
an elastic cord in both the upper and lower
hems. } **\$ 1.35**

“

{ with a pair of Bee-gloves. Our special bee-
gloves are made with long sleeves and of
heavy drilling for wear in the bee-yard.
(Sizes: Small, medium, or large). } **\$ 1.25**

Canadian postage on each of above combinations 30 cts. extra. Foreign postage 60 cts. additional. Many other combinations to choose from. Ask for our combination catalog.

USE THIS COUPON

I enclose \$.....for combinations checked.

Name

Address

Don't forget extra postage for Canada or foreign countries.

"falcon" Queens.....

Three-band and Golden Italians, Caucasians, and Carniolans

Untested, July 1 to October 1 . . One, \$.75; six, \$4.25; twelve, \$8.00
 Select untested, July 1 to October 1, " 1.00 " 5.50 " 10.00
 Tested, \$1.50 each. Select tested, \$2.00 each.

All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are to be found on the reverse side of the cage cover. A full line of bee supplies and foundation manufactured by us at Falconer, N. Y. Write for samples of our foundation and Red Catalog, postpaid.

DEALERS EVERYWHERE.

Red Catalog, Postpaid.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. CO., FALCONER, N. Y.

Where the good bee-hives come from

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time" Send for Annual Catalog which will tell
 It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard you who is your nearest Distributer.
 G. B. Lewis Company, Watertown, Wis.



Established 1885

We carry an up-to-date
 line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. . . . Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
 High Hill, Montgomery Co., Mo.

THREE-BAND ITALIAN QUEENS

I am now in position to fill your orders for queens of a superior strain which are noted for their gentleness, honey-gathering qualities, and there are none better for wintering. Special attention is given to orders for BEES BY THE POUND WITHOUT COMB, with or without queens; also nuclei and full colonies.

New England Distributor
 of Beekeepers' Supplies
 Catalog Free

EARL M. NICHOLS

Lyonsville, Massachusetts

HOW FAR CAN A BEE SEE?

That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think!

The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. 10c a single copy.

Edward F. Bigelow, Editor,
 The Agassiz Association, Inc.

ARCADIA:

Sound Beach, Connecticut

HONEY MARKETS

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached on all sides and evenly capped, except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal ex-

tractors and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

CINCINNATI.—There is very little doing in honey, both comb and extracted. No new honey has yet arrived. General conditions are good for a big crop. Cincinnati, June 20. C. H. W. WEBER & CO.

KANSAS CITY.—The first shipment of new comb honey has made its appearance, and sold on arrival at \$3.75 per case of 24 sections for No. 1. The demand is good. The demand for extracted is light; supply not large. We quote white at 8 to $8\frac{1}{2}$. Beeswax brings 25 to 28. C. C. CLEMONS PRODUCE CO. Kansas City, June 19.

ZANESVILLE.—Best grades of white comb honey still command 18 to 19 cts., but the unusually good honey-flow (locally at least) is likely to result in considerable weakening of the market. Best white extracted, which has been selling at 9 to 11, according to quantity, will probably drop a point or two within the next few weeks. For beeswax we now offer, in trade, 31 to 32, according to color and quality; in cash, 29 to 30. Zanesville, June 21. EDMUND W. PEIRCE.

CINCINNATI.—This market is in good shape to receive the new crop of honey, which will be a big one in this part of the country. Our advice is that the early bird will get the price, and those who wait will be sorry for it. We can use quick shipments of comb honey, and are selling what we have at from 15 to 16 by the case; some cheaper at wholesale. Extracted honey for table use is selling at $7\frac{1}{2}$ to 10, and amber honey in barrels at 6 to $7\frac{1}{2}$, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 30 cts. per lb., delivered here. Cincinnati, June 19. THE FRED W. MUTH CO.

NEW YORK.—There are no new features in the condition of the market. New crop of comb honey from the South is beginning to arrive in small quantities, and finds ready sale at from 14 to 15 for No. 1 and fancy white, and lower grades at from 12 to 13. Extracted honeys are decidedly dull; and while there is a fair demand for strictly first-class quality, amber and light amber are neglected. West Indian is arriving in large quantities; and on account of the slow demand, prices have been gradually declining. Choice stock is now selling at around 65 to 70 cts. per gallon. We are advised by our California shippers that there will be no sage honey to speak of this season; and prices on others, such as alfalfa and orange, have not been established as yet for the new crop. Beeswax is steady at from 31 to 32. New York, June 21. HILDRETH & SEGELKEN

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

Now, Then, for Your Early Bee-supply Orders!

Send us a list of the Bee Supplies you want.
Our prices will astonish you.
Also send us your old combs.
We will render your wax and save you money.
Write for particulars.

THE FRED W. MUTH CO.

"The Busy Bee Man"

204 Walnut Street

Cincinnati, Ohio

An Active Season is Here

A carload of perfectly new goods is just on hand from the factory, and another car is expected any day, and the factory has booked us for four cars. This brings up our assortment so that we can now furnish almost any thing listed in the catalog at once.

Hives should be ordered at once if they are to be ready for swarms. Frames, and other inside fixtures too, should be put together now.

If you are wanting any special goods, orders should be made at once. Other cars are coming regularly from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

The mailing of our new catalog was completed some time ago. If you are not on our mailing list send us a postal-card request for this catalog.

If you want to buy in quantities considerably larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder—the best in the market. Write for our catalog.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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 Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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SAN FRANCISCO.—The new crop of honey is very late in materializing. Fancy water white is 15 to 16; dark to amber, 14 to 14½; water-white extracted, 9 to 9½; light amber, 8 to 8½; dark from 6 to 8. Beeswax 30 to 31 for nice yellow, and 24 to 29 for darker grades. Not much honey or wax is being offered.

San Francisco, June 17. J. C. FROHLIGER.

INDIANAPOLIS.—Market is now practically bare of fancy white comb honey. No. 1 white is selling at 16 to 17; amber comb is in slow demand, and at varied prices. Best extracted sells at from 11 to 12 in five-gallon cans, according to quantity. Beeswax is in good demand, and producers are being paid 30 cents cash or 32 in trade.

Indianapolis, June 21. WALTER S. POWDER.

CHICAGO.—Our market is entirely bare of comb honey of the best grade, and very little of the poorer grade is to be found. No. 1 to fancy white comb will bring 17 to 18 upon arrival; and until the traders each get a small supply consignments will sell promptly. There is no change in the price of extracted from recent quotations. Beeswax also is steady.

Chicago, June 19. R. A. BURNETT & Co.

ST. LOUIS.—Southern honey in barrels is commencing to arrive, but there is no trade on the article, as buyers are holding off. The stocks of comb honey are light, and there is barely any demand for same. We quote fancy white comb honey at 16 to 17; No. 2 white, 15; light amber, 13 to 14; by the case, fancy white comb honey, \$3.65 to \$3.75; No. 2 white, \$3.25 to \$3.40; amber, \$2.75 to \$3.10, according to quality. Dark or broken honey is almost unsalable. Extracted honey, Southern, in barrels and half-barrels, 6 to 6½ for choice light amber; dark sells for less; in five-gallon cans at 6½ to 7. California and other western honey, white, brings 9 to 9½; light amber at 8 to 8½; all in five-gallon cans. Beeswax is in good demand at 31½ for prime; inferior and impure sells for less.

R. HARTMANN PRODUCE CO

St. Louis, Mo., June 23.

Out-of-town People

who send their funds to us by mail, as well as those who personally transact their banking with us, are depositors of an institution whose strength is based upon ample capital, careful management, and strict supervision by the State Banking Department of Ohio.

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Medina, Ohio

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E. R. ROOT, Vice-Pres.

E. B. SPITZER, Cash.

J. E. MASON, A. Cash.

. . . ROOT'S . . .

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Our new catalog is full of information about these labor-saving machines. With the difficulty of getting competent help, the power extractors are being sold largely in this and foreign countries, and the present demand is far greater than ever before. Read what a California producer says in a letter to a disinterested party, which we are permitted to see and publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root Automatic extractor, as I believe it is as near perfection as can be. This machine runs so easy that a few turns to get it up to speed is all that is necessary; and the men, while using the No. 17, which I formerly had, could average only 1000 lbs. per day, while with this machine they can average 2000 lbs. with but one additional man. No apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, and financially to the honey-producers' interests.

Elk Grove, Cal.

B. B. HOGABOOM.

For full particulars see our new catalog

THE A. I. ROOT COMPANY, MEDINA, OHIO

New York, 139-141 Franklin St.

Chicago, 213-231 Institute Place

Philadelphia, 8-10 Vine St.

Des Moines, 565 W. 7th St.

St. Paul, 1024 Mississippi St.

Syracuse, 1631 Genesee St.

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Gleanings in Bee Culture

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Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

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RUSH ORDERS

BY MAIL.—Has your "forgettery" been working? And right this minute you need foundation or other items. See page 1 of our catalog, and it gives parcel-post rates on various articles.

BY EXPRESS.—Larger shipments than can go by mail we can rush out at once. Parcel-post and express orders receive our first attention.

BY FREIGHT.—Our rule is "ship same day the order is received," and we break it only when absolutely necessary. Notice that Lansing is the railroad center of Michigan from which freight shipments can be delivered quickest.

And we fill all orders with Root's goods. Just remember that too. Send for catalog. Beeswax wanted.

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THE SOUTHERN FRUIT GROWER
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Am now shipping Untested Queens from My

Celebrated Pedigreed Strain

My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLEY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States.

Never had foul brood.

Swarthmore Apiaries,
Swarthmore, Pa.

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You will soon need a bill of supplies. Let us quote you before placing your order. We please thousands, why not you? Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, \$1.00; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c.

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THE BEEWARE BRAND MEANS SUCCESS INSURANCE

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G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

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Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

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"Griggs is always on the job."



**"If Goods are wanted Quick,
send to Pouder."**

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Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and I should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

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E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

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PRACTICE

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Tenth and G Sts., WASHINGTON, D. C.

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Patent Counsel of
The A. I. Root Co.

Boston New England

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Providence, R. I.

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We have many good reasons why you should try our queens. . . Here are two of them:

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R. R. WHIPPS, Riverside, Cal., April 18, 1913.

A. R. BOLTON, New Hartford, N. Y., June 17, 1913.

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As to our reliability, inquire of Du Bois National Bank, Du Bois, Pa., or any of our customers.

PRICES: Select untested queen, 75c; 12, \$8.50; 24, \$16.50. Prices on larger number quoted on request.

J. B. HOLLOPETER,

PENTZ, PENNSYLVANIA

Containers for Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, and 5 gallon capacity. Get full information, prices, and samples.

The A. I. Root Company, - - - - - Medina, Ohio.

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GOOD QUALITY, SCIENTIFIC WORKMANSHIP
CAREFUL PACKING
EFFICIENT SERVICE

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

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**THE COAST LINE TO
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Four trips weekly between Toledo, Detroit, Mackinac Island and way ports. Ten Day Stopover allowed at Alpena either direction on tourist tickets without additional cost. Daily service between Toledo, Cleveland and Put-in-Bay.

Special Steamer Cleveland to Mackinac Island, two trips weekly, June 15th to September 10th stopping only at Detroit every trip and Goderich, Ont., every Monday up-bound and Saturday down-bound.

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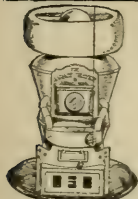
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\$10 DOWN \$10 A MONTH**



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Save 1/3 to 1/2 on Fuel Bills



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Makes and burns its own gas. No grease, odor nor dirt. Brighter than acetylene. Over 200 styles. Every lamp warranted. Write for catalog.

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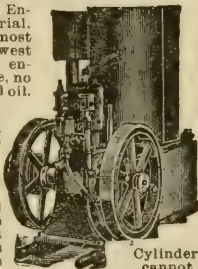
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Gasoline is 9c to 15c higher than coal oil, and still going up. Two pints of coal oil do work of three pints gasoline.

AMAZING "DETROIT"

—only engine running on coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Only three moving parts —no cams—no sprockets—no gears —no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric lighting plant. **Prices (stripped), \$29.50 up.** Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT," thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, you get **Special Extra-Low Introductory price.** Write (138)

Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.



Cylinders cannot carbonize

BEESWAX WANTED!

Recent demand for comb foundation has been good, and our stock of beeswax is running low. We offer for good average quality and prompt shipment 30 cts. per lb. cash, or 32 in trade, delivered at Medina. Shipments from the Pacific coast should be in barrels or boxes. From other Western points, pack in double bags to get the most favorable rate. Be sure to mark the shipment so it can be identified when it arrives, and send us a shipping receipt with a statement of gross, tare, and net weight shipped. This is important as it gives us something to check so as to determine whether any has been lost in transit.

The A. I. Root Company
Medina, Ohio



4 BUGGY WHEELS FREIGHT PAID \$8.75

With Rubber Tires, \$18.45. Your Wheels Rubbered, \$10.30. 1 make wheels 3/4 to 4 in. tread. Tops, \$6.50. Shafts, \$2.10; Repair Wheels, \$5.95; Axles \$2.25; Wag-on Umbrella free. Buy direct. Ask for Catalog 47
SPLIT HICKORY WHEEL CO., 547 E. St., Cincinnati, Ohio.

HOW TO KEEP BEES

By ANNA BOTSFORD COMSTOCK

THIS is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood. Price \$1.10 postpaid by

THE A. I. ROOT COMPANY, MEDINA, OHIO

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

W. H. LAWS

is again ready to fill your orders for queens the present season. Law's Red-clover Italians are as good as can be had.

One firm who bought over 1100 queens from me in 1912 says, "Your queens are very satisfactory." We are booking orders now, and we are going to do our level best to mail all queens by return mail when so ordered. My bees are absolutely clean and free from all disease.

Queens sent out under the usual guarantees. Prices: Single queen, \$1; six for \$5. Breeding queens, none better, each, \$5.

W. H. LAWS, BEEVILLE, BEE COUNTY, TEXAS

Famous Italian Queens!

from the Apiaries of
WALLIN & CORLIS

have won a world-wide reputation for prolificness, hardiness, gentleness, and honey-gathering. Our queens are reared scientifically from breeders perfected by years of elimination. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating.

Satisfaction and safe arrival guaranteed.

Circular free.

Untested, 75 cts.; dozen, \$8.00.

WALLIN & CORLIS
Brooksville, Ky.

Miller's Strain of Red-clover ITALIAN QUEENS

By Return Mail after June 5 to 15 or order returned

Bred from superior breeders for business; gentle; no better hustlers; bees roll honey in; three-banded; **Northern-bred**; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored long-tongued red-clover strains. Untested, \$1.00; six, \$5.00; dozen, \$9.00. Select, untested, \$1.25; six, \$6.00; dozen, \$11.00. Satisfaction guaranteed.

Isaac F. Miller, a queen specialist and breeder for sixteen years, previously of Brookville, Rt. 2, Reynoldsville, and lately of Oil City, Rt. 2, Pa., is agent and breeder for E. L. Miller. Send all orders to

I. F. MILLER, Rt. 2, Brookville, Pa.



FAMOUS QUEENS direct from ITALY!

Bees more beautiful, more gentle, more industrious; the best honey-gatherers. **Universal Exposition**, St. Louis, Mo., 1904, the highest award. Extra breeding queen, \$3.00; selected, \$2.00; fertilized, \$1.50. Write.

Hartford, Conn., April 20, 1907.
Please find enclosed \$11.00 for six queens. I hope to get as good ones as I received before, and if I do I shall want more.
A. W. YATES.

Norwichtown, Conn., Sept. 14, 1912.
I send you money order for \$3.00. I wish two of your fertilized queens. I have seen some of your bees owned by Mr. Yates, and I like them.
ALLEN LATHAM.

ANTHONY BIACCI, Pedevilla near Bellinzona, Italy
Please in writing mention GLEANINGS.

ITALIAN BEES AND QUEENS

Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50. Try me for Stover.

J. L. FAJEN, . . . STOVER, MISSOURI



QUEENS AND BEES

An improved superior strain of Italians is what **QUIRIN RAISES**. Our stock is Northern bred and hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis., and July 20th (of same year) he wrote us saying they did just splendid, as at that date they had already filled their supers, and that he would have to extract them. We have files of similar testimonials.

Prices for rest of season	1	6	12
Select queens	75	\$ 4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden breeders	5 00		
Two-comb nuclei, no queen ..	2 25	12 00	22 00
Three-comb nuclei, no queen ..	3 25	18 00	32 00
Full colonies on 8-frames	5 00	25 00	
One pound bees, no queen	1 50	8 00	
Half pound bees, no queen	1 00	5 00	

Add price of queen wanted with bees. Bees by the pound, nuclei, and colonies, if wanted before June 1, add 25 per cent. **QUEENS NOW READY**. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO

Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,
Queen-breeder. Route 1, Morgan, Ky.



LINE-BRED CARNIOLAN Queens!

Carniolans are good winterers—prolific, gentle, enter supers readily, and excellent honey-gatherers. Untested, \$1.00; dozen, \$9.00. Tested, \$1.50.

CARNI-ITALIAN QUEENS

A cross between the Italian and Carniolan. Most excellent honey-gatherers, but not so gentle as Carniolans. While they last, 90 cts. each; dozen, \$8.00.

Bees by the pound and nuclei through July. Ask for prices.

ALBERT C. HANN, PITTSBOWN, NEW JERSEY
Carniolan Queen Breeder

SAVE TIME--- Fold your sections and put in foundation at one operation, quick and perfect, with a Rauchfuss Combined Section Press and Foundation Fastener; guaranteed to give satisfaction. Send for illustrated circular. Price \$3.00 delivered anywhere in U. S.

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In the Wholesale District

100 Outside Rooms

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50 Large Sample Rooms

Handy to Everywhere

Western Beekeepers can save money and get the best goods obtainable especially made to meet Western conditions. Send for new catalog and special price list to

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HARVESTER with Binder Attachment cuts and throws in piles on harvester or winnow. Man and horse cuts and shocks equal with a corn Binder.

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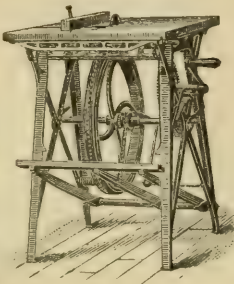
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Please send me the items checked. I enclose

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say what you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—Finest quality clover and clover-bass-wood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Sweet-clover honey, 7½ cts. per lb. in 60-lb. cans; 2 cans per case, F. O. B. Cochrane, Ala. J. C. WEAVER, Cochrane, Ala.

HONEY AND WAX WANTED

WANTED.—White-clover comb and extracted honey. Give lowest prices. L. K. HOSTETTER, Rt. 6, Lititz, Pa.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb, extracted honey, and beeswax. Write us. HILBRETH & SEGELKEN, New York.

WANTED.—A good cheap second-hand extractor, also wax-extractor. N. F. GUTE, Artesia, Miss.

WANTED.—Comb and extracted honey, best quality, quick. Carolina product preferred. C. W. HARMON & Co., Asheville, N. C.

We will pay the highest cash price for thoroughly ripened extracted honey. Write us, stating quality and quantity, with prices F. O. B. your station. SPENCER APIARIES, Nordhoff, Cal.

WANTS AND EXCHANGES

WANTED.—To solicit orders for white-sweet-clover seed. WM. CRAIG, Luce, Mich.

WANTED.—To sell one, two, and three frame nuclei with untested queens, cheap. WM. ATCHLEY, Beeville, Texas.

Owing to ill health I will sell my interest in the Rocky Mountain Bee Co., amounting to nearly one-fourth, at a great bargain; or would trade for satisfactory property in lower altitude. This is a profitable investment for a good beekeeper.

W. HICKOX, Forsyth, Mont.

REAL ESTATE

FOR SALE.—At a bargain, 20-acre fruit ranch in the famous Wenatchee-Columbia River red-apple belt. Planted to standard winter apples, trees four years old. Will take bees and good location in South in part payment. For full particulars write J. D. YANCEY, Port Columbia, Wash.

Bee-ranch in south Texas for sale. Just out of city limits of San Marcos, a splendid location for an apiary or poultry-ranch—no bees near; splendid bee range. Good market for all kinds of produce; nice modern cottage. One of the most healthful locations in Texas. If interested, address

J. P. CALDWELL, San Marcos, Texas.

Virginia apple land will make you independent. \$15.00 per acre and up. Easy payments. Buys No. 1 fruit and farming land. Write at once for our illustrated booklet, and low excursion rates. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., Room 73, Roanoke, Va.

FOR SALE.—My home on D. & R. G. R. R.; 40 acres, 15 alfalfa, 5 wheat; 1-3 cu. ft. water; 7-room comfortable bungalow; barn; 34 colonies Carniolan bees, complete outfit; 8 barrels honey guaranteed this season. Best climate in Colorado for consumption. Price \$2400 (\$500 cash). S. W. MORRISON, M. D., Oxford, La Plata Co., Col.

FOR SALE

A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. THOS. LITZ, Osceola Mills, Pa.

FOR SALE.—New and used bee-supplies cheap. WM. H. MARTIN, Rt. 1, Box 13, Osawatimie, Kan.

Several thousand 4¼ x 1¼ wide beeway sections; a bargain. Also a new super-foundation mill. Write ARTHUR RATTRAY, Almont, Mich.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Texas.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—40 second-hand 60-lb. honey-cans at 10 cents apiece; 32 chaff hives, \$2 apiece, mostly all new ones; 2 honey-extractors—one new. MRS. M. ISBELL, Norwich, N. Y.

FOR SALE.—No. 15 Cowan reversible extractor, good as new, \$10; 10-inch foundation-mill, first-class condition, late pattern, \$20. Several hundred dove tailed hives and supers in good condition at half the cost of new material in the flat. J. A. GREEN, Grand Junction, Col.

FOR SALE.—Best No. 1 sections, 1000, \$4.40; 2000, \$8.60; 3000, \$12.60; 5000, \$20.00; No. 2, 50 cts. less. Plain, 25 cts. less. Five white-pine hives and supers, \$7.25; ten-frame, \$8.00; 100 Hoffman frames, \$2.60. Best goods, lowest price. Catalog free. H. S. DUBY, St. Anne, Ill.

BEEES AND QUEENS

FOR SALE.—Golden Italian queens, 60 cts. each. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Ten colonies of bees and a few supplies. Mrs. W. V. HOAG, 9315 Central Av, Chicago, Ill.

Red-clover Italian queens, untested, 75 cts.; tested, \$1.25; breeders, \$5.00. J. H. GIBBS, Berlin, Md.

Golden Italian queens, untested, \$1.20, after June 15. E. H. BUCKMAN, Chester, Pa.

Golden Italian queens, \$1.00 each; six for \$5.00. Warranted. J. B. CASE, Port Orange, Fla.

Famous North Carolina bred Italian queens for sale. As good as the best; beautiful, prolific, fine hustlers for honey. No foul brood. All cells are reared in full two-story hives running over with bees at all times. That gives a queen that is a wonder. See my advertisement in GLEANINGS, June 1 and 15, 1913. Red clovers a specialty. My Golden are good. Each grade, untested, 75 cts.; \$7.00 per dozen. Select untested, one, 90 cts.; \$8 per dozen. Tested, \$1.25; select tested, \$1.50; extra select tested, \$2.00; breeders, \$3.00 and \$5.00.

H. B. MURRAY, Liberty, N. C.

Queens by return mail. Mismatched Italians 40 cts. each or \$4.00 per doz.

LATSHAW HONEY CO., Carlisle, Ind.

Queens by return mail, untested, \$1.00 each; six, \$5.00; \$9.00 per dozen. Italians and Carniolans. WM. ATCHLEY, Beeville, Bee Co., Texas.

FOR SALE.—A limited number first-class untested Italian queens at 75 cts. each; three-band red-clover stock only. J. I. BANKS, Rt. 3, Liberty, Tenn.

Fine Italian queens, three-banded, prolific, hardy, gentle. Untested, 75 cts. each; 6 for \$4.25; dozen, \$8.00. J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

FOR SALE.—Golden Italian queens, tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00. D. T. GASTER, Rt. 2, Randleman, N. C.

Hardy northern-reared queens of Moore's strain of Italians, ready June 15. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. P. B. RAMER, Harmony, Minn.

I will sell untested Italian queens at 60 cts. each, \$5.00 per dozen; no disease. Safe arrival guaranteed. EDWARD O. MESERVE, Ventura, Cal.

Goldens that are golden, pure Italian queens \$1.00 up. Send for booklet, but do not send rush orders. GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Virginia three-banded Italian queens, untested, 75 cts.; tested, \$1.00. All dead queens replaced free. Ready May 15. S. CLICK, Box 16, Rt. 2, Mt. Jackson, Va.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address DEROY TAYLOR, Box G, Lyons, N. Y.

Shaw queens by return mail. Three-banded Italians only. No disease, and satisfaction guaranteed. Tested, \$1.00 each. Untested, 75 cts.; \$7 per dozen. J. W. K. SHAW & CO., Loreauville, La.

FOR SALE.—Italian queens now ready, safe arrival and pure mating guaranteed. Select untested, \$1.00 each. All orders will receive our prompt attention. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—Full colonies of Italian bees with young queen, \$6.00; nuclei, \$1.25 per frame; queen extra. Write for prices on queens. ARVIN, NUSBAUM CO., Meldrim, Ga.

FOR SALE.—After June 20, fine Golden Italian queens, 75 cts. each; 6 for \$4.00; few choice breeders at \$3.00 each. Cash with order. Good honey-gatherers. EDWARD REDDOUT, box 43, Lysander, N.Y.

FOR SALE.—Untested Howe strain of dark Italian queens, select mated. No other bees in mating distance. Send for circular. Orders filled by return mail; 1, \$1.00; 6 for \$4.50; 8.50 per 12. D. G. LITTLE, Hartley, Iowa.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Virginia.

Three-banded Italian queens and bees. Untested queens, 75 cts. each; six, \$4.25; twelve, \$8.00; tested, \$1.25 each; six, \$7.00; twelve, \$12.00. For select queens, add 25 cts. each to the above prices. Nuclei without queens, one-frame, \$1.50; two-frame, \$2.50; three-frame, \$3.00. For nuclei in quantity lots, and bees by the pound, write for prices and circular. ROBT B. SPICER, Wharton, N. J.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's Va.

Italian queens, gentle, three-banded stock. A new strain bred for honey-gathering ability. Untested queens, 75 cts. each; 12 for \$8.00; 50 for \$32.00. Two-frame nucleus, Danz, frames, with queen, \$3.00 each. H. C. SHORT, Winchester, Ohio.

Choice Italian queens; hardy, gentle, white-capped. Untested, 75 cts.; select untested, \$1.00; select tested, \$1.50; breeders, \$5.00. Will return money if unable to fill orders if so requested when sending order. A. J. SEAVEY, Rt. 2, Farmington, Me.

Queens by return mail. We are now up with orders and hope to fill all orders promptly. Three-banded Italian queens, untested, best honey-gathering strain, 1 for 75 cts.; 6 for \$4.25, 12 for \$8.00. No disease. Satisfaction or money back. W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—Italian queens, reared by best-known methods of a \$10 Doolittle breeder and select imported stock, mated to select drones. I guarantee queens to be A1 in every way. Virgins, 50 cts. each; untested, 75 cts.; 12 for \$8.50; 24 for \$16.50. J. B. HOLLOPETER, Pentz, Pa.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed. C. B. BANKSTON, Buffalo, Leon Co., Tex.

The two B's of quality. Italian bees and Sicilian Buttercups. For all that is best, unexcelled. Untested queens, \$1.00 each, six for \$5.00. Buttercup eggs from prize-winning pen, 15 for \$4.00; "A" pen, 15 for \$2.50; 30 for \$4.00. H. WILLIAM SCOTT, Barre, Vt.

Queens from Georgia apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested, \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb, packed any size to suit customer. Prices and samples sent free. JOHN W. CASH, Bogart, Ga.

FOR SALE.—Guaranteed purely mated three-banded Italian queens. I recommend four points—gentle, prolific, extra good honey-makers, good winterers. J. E. Hand strain. State inspector's certificate. Queens by return mail or your money back. Select untested, one, 80 cts.; 6, \$4; 12, \$8; 25, \$15. J. M. GINGERICH, Rt. 3, Arthur, Ill.

We will requeen our 2000 colonies this year with young queens bred from our best home and imported Italian stock. We offer the prolific year-old queens, removed from these hives, at 40 cts. each, \$4.20 per dozen; \$30.00 per 100. Untested queens, this year's rearing, 60 cts. each; \$6.50 per dozen; \$50 per 100. We breed for business, not looks. No disease; delivery guaranteed. SPENCER APIARIES, Nordhoff, Cal.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

Fine mated homing pigeons, \$1.50 a pair, or will trade for bees. L. FRANCISCO, Mosinee, Wis.

The New Way. Spearmint Gum by Parcel Post. Special offer. Three 5-ct. packages for 10 cts. post-paid. Agents wanted. Send for sample and particulars. TOURIST GUM CO., Rochester, N. Y.

HELP WANTED

WANTED.—A beekeeper at Perry, Okla. For full particulars address F. B. BOBBETT, Perry, Okla.

WANTED.—At once, assistant beekeeper. State age, experience, and wages. Four or five months' employment. J. H. STONEMAN, bx 264, Blackfoot, Ida.

INDIAN RUNNER DUCKS

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.

C. O. YOST, Box D, Rt. 4, Winchester, Ind.

BEEKEEPERS' DIRECTORY

If you need queens by return mail, send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

State Fair Premium Lists

LIST OF PREMIUMS AWARDED AT THE OREGON STATE FAIR, HELD AT SALEM, SEPTEMBER 29 TO OCTOBER 4, 1913.

BEEES AND HONEY.

1. Entries close September 28. Entry fees 10 per cent of first premium.
2. Exhibits must be in place by 6 o'clock A. M., Monday, September 29.
3. If there is no competition, only one premium will be paid.

4. The judge will in no case give first premium to a second-grade product, even though there are only two exhibits.

5. All exhibits must have been produced in the apiary of the exhibitor during the year 1913, and premiums will be restricted to exhibits from within the State of Oregon.

Specimen of comb honey, not less than 24 lbs., quality and manner of putting up to be considered.....	\$ 5.00	\$3.00
Most attractive display of comb honey	10.00	5.00
Specimen of extracted honey, not less than 24 lbs., quality and manner of putting up for market to be considered.....	5.00	3.00
Most attractive display of extracted honey.....	10.00	5.00
Specimen of beeswax, not less than 10 lbs., soft bright yellow wax to be given preference.....	5.00	3.00
Most attractive display of beeswax....	10.00	5.00
Honey vinegar, not less than one gallon, shown in glass.....	3.00	2.00

Single-comb nucleus three-banded Italian bees.....	5.00	3.00
Single-comb nucleus Golden Italian bees.....	5.00	3.00
Single-comb nucleus Carniolan bees..	5.00	3.00
Single-comb nucleus Caucasian bees..	5.00	3.00

SWEETSTAKES.

The largest, best, most interesting, attractive and instructive exhibition in this department, all things considered.....\$15.00

PREMIUM LIST INDIANA STATE FAIR, 1913. BEES AND HONEY; ENTRIES CLOSE AUGUST 23; FAIR OPENS SEPTEMBER 8.

	Premiums,	1st	2d	3d
Display of comb honey—quality, quantity, and manner of putting up for market considered.....	\$25	\$15	\$8	
Display of extracted honey—quality, quantity, and manner of putting up considered.....	25	15	8	
Display of beeswax—quantity and quality to be considered.....	10	8	6	
Honey vinegar, not less than one gallon, in glass.....	5	3	2	
One-frame observatory hive Italian bees, showing queen, workers, and brood in all stages.....	10	8	6	
One-frame observatory hive foreign bees, other than Italian, showing queen, workers, and brood in all stages.....	10	8	6	
Display of bee supplies.....	20	10	5	
Display of honey, wax, supplies, and other material pertaining to the bee industry.....	20	10	5	
Indianapolis, Ind.	CHAS. DOWNING, Sec.			

THE WEST MICHIGAN STATE FAIR, GRAND RAPIDS, SEPTEMBER 1—6, 1913.

	1st	2d	3d
Display of comb honey—quality, quantity, up to the amount of 500 lbs., appearance, and condition for market to be considered. Premiums will be paid on a basis of 5 cts. per section for first; 4 cts. per section for second, 3 cts. per section for third, for actual number of sections of comb honey shown. Maximum amount of premiums.....	\$20.00	\$15.00	\$10.00
Specimen case of comb honey, not less than 10 lbs., quality and condition for market to be considered.....	\$ 7.00	\$ 3.00	\$ 2.00

Display of extracted honey—quality, quantity up to the amount of 500 lbs., appearance, and condition for market to be considered. Premiums to be paid on a basis of 5 cts. per lb. for first, 4 cts. per lb. for second, and 3 cts. per lb. for third, for actual amount shown. Maximum amount of premiums.....	\$25.00	\$20.00	\$15.00
Specimen of extracted honey, not less than 1 lb., flavor, color, body, and style to be considered.....	\$3.00	\$ 2.00	\$ 1.00

Display of extracted honey in granulated form—appearance, quality, and quantity up to the amount of 150 lbs. to be considered. Premiums to be paid on a basis of 5 cts. per pound for first, 4 cts. per pound for second, and 3 cts. per pound for third, for actual number of pounds shown. Maximum amount of premiums.....	\$ 7.00	\$ 6.00	\$ 4.50
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Most attractive display of beeswax, quality and quantity up to the amount of 150 lbs. to be considered. Premiums to be paid on a basis of 5 cts. per lb. for first, 4 cts. per lb. for second, and 3 cts. per lb. for third, for actual number of pounds shown. Maximum amount of premiums.....	\$ 7.50	\$ 6.00	\$ 4.50
Most attractive display of best honey-producing plants, pressed, mounted, and named, not to exceed 25 varieties.....	\$5.00	\$3.00	\$2.00

Italian bees and queen, single-frame nucleus, in observatory hives.	\$3.00	\$2.00	\$1.00
Black bees and queen, single-frame nucleus, in observatory hives.	\$3.00	\$2.00	\$1.00
Carniolan bees and queen, single-frame nucleus, in observatory hives	.....	\$3.00	\$2.00
.....	.....	\$3.00	\$1.00
Caucasian bees and queen, single-comb nucleus, in observatory hives	.....	\$3.00	\$2.00
.....	.....	\$3.00	\$1.00
Queen-rearing nucleus, showing frame of queen-cells, in observatory hives	.....	\$5.00	\$3.00
.....	.....	\$5.00	\$2.00
Full colony in full-size observatory hive, showing different parts and appliances of hive, most instructive	.....	\$3.00	\$2.00
.....	.....	\$3.00	\$1.00
Largest, best, and most instructive display of nuclei of different races of bees in single-comb observatory hives	.....	\$5.00	\$3.00
.....	.....	\$5.00	\$2.00
Largest, best, most interesting, attractive, and instructive exhibition in this department, all things to be considered	.....	\$15.00	\$10.00
.....	.....	\$5.00	
The association has placed at the disposal of the department director a fund which he may procure: 1, demonstration of the treatment and handling of bees; 2, the use of machines in extracting honey, and a demonstration of the process of restoring the comb for refilling.			

SPECIAL NOTICES

A. I. ROOT

"PEACH JUICE" FROM EVAPORATED PEACHES.

Mrs. Root calls my attention to a mistake in one of my statements on page 425, June 15. I said I thought she used about a *pound* of peaches to a quart of water. She says it should have been *one-fourth* of a pound to a quart of water; and this $\frac{1}{4}$ lb. in a quart of water gives me both peaches and juice for *two* of my fruit suppers, and so the peaches I now have every day with my apples cost only 1½ cents for each meal. With the above amount of water, peach juice is by no means an expensive drink compared with the drinks at the soda fountains, and I am sure it is more wholesome, for it is just pure water and "uncooked food"—the food and drink the great Father himself prepared for our health and happiness.

VENTILATED SHOES, ETC.

Since what was said in Special Notices in our issue for June 15, when the hot weather came on I found my ventilated shoes spoken of too heavy, and my feet became unpleasantly warm. I am now feeling happy because of some cheap cloth shoes such as Mrs. Root wears. They cost only \$1.25; and if I am careful to put on different shoes whenever it rains and we have muddy weather, a pair lasts me quite a while. They are made of such thin cloth that they are almost as comfortable as going barefoot; and with a little care in keeping the dust brushed off with a good stiff brush they do not look very untidy—that is, I do not have to apologize for being around "barefooted" when visitors come unexpectedly. I suppose they can be had at almost any shoestore here in the North, although I did not succeed in finding any in Bradentown, Fla.

THE AMERICAN SEARCHLIGHT.

If you wish to keep track of the way in which civic reform is going on at the present time by leaps and bounds, you should subscribe for the *American Searchlight*, published by the American Civic Reform Union, 511 Caxton Building, Cleveland. Every citizen of Ohio should be interested in our Ohio law against "pandering," approved by Governor Cox April 23, to be effective in 90 days. This law makes it a penitentiary offense of from two to twelve years for being in any manner accessory to leading a young girl astray, or to be engaged directly or indirectly in any phase of the white-slave traffic. Besides the penitentiary penalties there is a fine of from \$1000 to \$5000. The complete law is given in the May issue of the *Search-*

light. I am especially interested in this Civic Reform Club, because The A. I. Root Co. had something to do with getting it started. The subscription price of the journal is 50 cents a year. Address Albert Sidney Gregg, editor, as above.

"STARVING AMERICA."

In reply to the many inquiries in regard to the price of this book see the following:

We are in receipt of your note drawing our attention to your review of McCann's "Starving America." The price of this book is \$1.50 net, and we should be glad to have you note this in your next issue of GLEANINGS.

We are unable to find any trace of your previous request for the book. In sending out review copies we always enclose a slip giving the price, or mark the price on the title-page.

New York, June 10. GEORGE H. DORAN CO.

As friend Terry also gave the book quite a favorable notice it has been rather perplexing not to be able to give the price. We think the book is well worth the money.

Later.—We have just made arrangements whereby we can furnish the above book clubbed with GLEANINGS for an even \$2.00.

DASHEEN FOR PLANTING.

Dasheen bulbs are finally for sale by a Tampa seedsman. The following explains itself:

Mr. A. I. Root:—I am sending you an advertisement which I clip from The Alabama Times.

Kerens, W. Va. C. R. MILLER.

SOMETHING NEW—SOMETHING GOOD.

Recommended and endorsed by the government and leading agriculturists, the dasheen—queen of the potato family, should be planted by every farmer. It tastes better than the sweet potato; yields five times as much as the sweet potato; keeps better than the sweet potato. We want every farmer in the United States to plant a few dasheens this year—next year you will plant acres. On receipt of 15 cents (stamps or coin) we will mail you a quart of dasheen bulbs—enough to plant a big patch. Only one quart to each farmer. Don't ask for more. Full particulars how to start and grow the dasheen with every quart order. Address Crenshaw Bros. Seed Co., Tampa, Fla. Be sure to mention the *Times*. If you don't, this order can't be filled.

I am acquainted with the Crenshaw Brothers Seed Co., and they are, without doubt, good for whatever they offer. As there is no date to the above clipping, we can not be sure they are prepared at the present time to furnish bulbs.

TWO HUNDRED THOUSAND BARRELS OF SEED POTATOES.

The above is the amount grown in the State of Maine for one seed-potato firm in Boston, Mass. These potatoes are held in cold storage so they will be in fine condition to plant in Florida, or anywhere else, for that matter, on the face of the earth. A carload has just been shipped to a seedsman in Tampa, Florida, to be held in cold storage until October and November. A sample of the Red Bliss Triumph has been submitted to me, and it was certainly in beautiful condition for planting. In fact, it has already been cut in two and planted. You see this solves the difficulty of having good nice firm seed potatoes ready to plant anywhere in the world, and in any month of the year. The difficulty of raising our own seed potatoes down in Florida is that, unless we have cold storage, it is a difficult matter to keep them in good condition until planting-time in the fall. I have succeeded fairly well in keeping them in my incubator cellar covered with dry sand, except that the sprouts on them were rather long when I got around to care for them the first of November.

Of course it is somewhat risky to plant potatoes on the dates mentioned during the average winter around Bradentown and in Manatee Co. Quite often we have frosts more or less; but if the potatoes are not too far along, even if they are nipped and killed down pretty close to the ground, they will pick up and make a good crop. He who succeeds, or even contributes to the success of giving hungry human-

ity good potatoes at a low price every month in the year *all over the world* is a humanitarian, and I greatly enjoy doing my part of the work.

My dasheens are now doing finely, not only down in Florida, but I have forty or fifty fine-looking plants here in Medina, with leaves at the present time, July 1, as large as dinner-plates.

Kind Words from our Customers

The supplies I got at your factory May 31 were entirely satisfactory.

Bath, Ohio, June 16. HARLEY WILKINSON.

Please tell Mr. A. I. Root that his Home papers are greatly appreciated by his Cheltenham readers who hope he will continue them for many years to come.

A. H. BOWEN.

Coronation Road, Cheltenham, England, May 31.

A KIND WORD AND A KIND OFFER FROM A JAMAICA BUSINESS MAN.

Mr. A. I. Root:—I am an American business man doing business in Jamaica, W. I., and I have come across GLEANINGS for October, and am pleased to read your articles. The opportunity to-day for the laymen to spread the gospel of Jesus Christ is wonderful. I enclose some leaflets which I am, by the blessing of God, sending out free all over the world. I shall be glad to send a supply to any one who will send me his address on a postcard (postage on cards 2 cts., and on letters 5 cts. to Jamaica).

Jamaica, B. W. I., Nov. 4. E. B. HOPKINS.

A KIND WORD FROM FAR-OFF BRITISH COLUMBIA.

[We let the writer of the following story tell it in his own quaint phraseology.—A. I. R.]

Mr. A. I. Root:—This is first my letter to you. I am trying to write English. I am a foreigner.

I find we shall read what is good, and never shall we say in this world we have not time to read, and especially when we come to be of old age.

In your writing in GLEANINGS you are very severe on big able-bodied men abegging.

I been thinking what will replace you in your journal in your good Home talk when you be here no more, or when you come to die. In my own hearth you been always to me as model man. When young you first make a start by working for your daily bread; and now in your old age it is right for every man when he come to old age to be sure to belong to the Lord Jesus Christ.

I am now sure for Christ. I feel glad I find the Lord our God is with us; and he is too holy to be with sinners.

I am trying now every day to live righteous before him.

I am a reader of your journal, and can not write good English. I learn a little writing from reading, and reading I learn by myself. I keep bees now to make money, and I like bees much, I must say, for pleasure.

Elwine, B. C., Canada, Nov. 13. H. KACER.

A GROCER WHO DIDN'T "BACK DOWN" WHEN HE LOST SOME OF HIS CUSTOMERS.

I saw in GLEANINGS a short time ago where a beekeeper stopped his paper because Bro. Root preached temperance. He liked his rum; but you can continue mine for his good work and good sermons. Inclosed find one dollar for another year, and then don't stop it if I am alive at the end of the year, for I want to see the rum business step down and out. We are a manufacturing town of about 6000 population; have 16 to 17 places where rum is sold; but we have a strong temperance sentiment, and are in hopes to win out this spring. Two years ago we came within 44 of going dry.

I am in the grocery business. Two years ago some of the rum-sellers stopped trading with me because I stood for temperance; but last year my trade increased over \$2000. I believe right will prevail. I don't believe in selling out for a little pottage. I am 65 years old, and I never voted to license men to sell rum, and I think it is a poor time to com-

mence now. There is not a man in town selling rum to-day but commenced the business since I became a voter; and the idea that I should conform to *their* wishes! I am for temperance, to stay. God being my helper, I mean to show my colors at the polls on election day.

Ticonderoga, N. Y., Feb. 10. GEO. H. ADKINS.

A TURNING-POINT IN A LIFE; A KIND WORD FOR THE A B C BOOK.

Looking back over the last 25 years, if I were asked what was the most important influence exerted upon my life, I believe that, without any study whatever, I should say that the reading, 20 years ago, of a copy of the A B C of Bee Culture, by A. I. Root, of Medina, Ohio. At the time I read it I was an apprentice stair-builder in the old Phoenix Lumber Co.'s mill at Houston, Texas, and my older brother and myself were operating a ten-acre apiary and poultry-ranch some four miles from the city, going back and forth to our work day and night.

This work was the first thing in the way of constructive literature I had read since finishing the "Swiss Family Robinson" several years previous; and, coming just at the time it did, I am confident that it is to be accredited for being the means of enlisting my interest in the subject of science as applied to agriculture, and that practically any and all of the reputation I enjoy as a scientist to-day is to be traced to this book.

As a practical work on entomology as related to the bee it stands without a peer; and on account of the many allied industries which depend for a part or all of their success on the apiarist, I found it to be a good text-book, not only on horticulture and carpentry, but on the subject of mechanics as well.

The way Novice had of inventing any thing he needed stimulated my intellect to "go and do likewise," and the Patent Office will be able to attest the fact that there have been "some things doing" in my cranial cavity, as at this time there are 38 inventions to my credit, some patented, others not more than barely completed.

My main invention is the motor plow, which I believe I can truthfully say has never been out of my mind for an entire week since I received the first inception of the idea, some 18 years ago, and if to-day it were in use here in this fertile "South Plains or Ballinger Country" it would save the farmers thousands of dollars annually in feed-bills, saved by not having to feed any thing on Sundays, rainy days, and during idle periods during the year.

There is a maturity of intellectual development possible to the few who search for the secrets of science which enables a man to create new things almost as easily as the average man can go along on his plodding routine work with his divinely potential mind in a condition of mental atrophy.

To-day as I was driving along among the fragrant catclaw (acacia) and mesquite (prosopis) and alfalfa (medicago) I could not keep from thinking about how the flying over his head of a swarm of bees some 48 years ago changed the life history of A. I. Root, and how, in turn, his writing and my reading his book on the subject had changed my life history, and, like the story of the house that Jack built, how it goes on and on, until no man may measure the final result of a careless swarm of bees flying over one young carpenter, and how it had its indirect influence on another young stair-building carpenter 20 years later.

Some time I shall write an article telling the story of success with the honeybee in Central Texas, near this town of Ballinger; and I am writing now for prices on the latest edition of the A B C of Bee Culture, with the intention of giving them as prizes to the young readers of my paper; and I shall expect every one who reads a copy to add his mite to the sum total of human understanding.

Ballinger, Texas, May 1. A. S. WHITTEN.

GREAT LAKES MAP; SEND FOR INTERESTING VACATION LITERATURE.

The D. & C. Line, which operates daily steamer service between Detroit and Buffalo, has published a pamphlet containing the largest map of the Great Lakes, showing routes to all summering places. You should have one to plan your vacation. A request with two-cent stamp enclosed will bring it. Write now.

DETROIT & CLEVELAND NAVIGATION Co., Detroit.

SPECIAL SALE!

Root's Goods Below Our Cost

Beekeepers will change their minds and use different kinds of supers all of a sudden. Our trade used, before section-supers, shipping cases, etc., while now nearly every beekeeper in our locality produces bulk comb honey, which, consequently, leaves us with a big stock of section supers on hand, which we are willing to sell very cheap just to dispose of them. They are all in the original packages, just as we received them from the factory, and there is absolutely nothing the matter with them, only we have hardly any more sale for them in our locality.

70 2 I-8.....	.37 each	60 2 P-8.....	.37 each
25 4 I-8.....	.50 each	100 4 I-10.....	.55 each
65 4 S-8.....	.50 each	80 2 I-10.....	.40 each
40 2 S-8.....	.37 each	35 4 S-10.....	.55 each
40 4 P-8.....	.50 each	75 2 S-10.....	.45 each

10,000 4 x 5 x $1\frac{3}{8}$ plain sections, 100 for .55; 300 for \$2.00; 1000 for \$3.70.

SHIPPING-CASES

	With glass, in lots of 10	100
150 24-lb. regular 4-row for $4\frac{1}{4}$ x $11\frac{1}{2}$ sections.....	\$1.30	\$12.50
150 12-lb. regular 3-row for $4\frac{1}{4}$ x $1\frac{7}{8}$ sections.....	.90	8.50
150 12-lb. regular 3-row for $4\frac{1}{4}$ x $1\frac{1}{2}$ sections.....	.85	8.00
100 24-lb. regular 4-row for 4 x 5 x $1\frac{3}{8}$ sections.....	1.20	11.50
150 12-lb. regular 3-row for 4 x 5 x $1\frac{3}{8}$ sections.....	.90	8.50

HONEY-CANS

As in previous seasons, we have prepared a very large and complete stock of honey-cans in our warehouse, ready for immediate shipment to you. Our honey-cans this season are the product of the largest independent can-manufacturing company in the United States, and are warranted to be the best grade possible to procure. Every can and case is fully guaranteed to give absolute satisfaction. The boxes are of the very best material that can be obtained for packing honey-cans, being strong and substantial, and securely nailed with cement-coated nails.

Prices quoted on application. Full line of Root's Beekeepers' Supplies always on hand.

Toepperwein & Mayfield Co.

San Antonio, Texas

PRINTYPE

Receives the Plaudits of the Public

Vigilant Protector of People's Eyesight Hailed as a Benefactor by Many Thousands of Enthusiastic Admirers. "Officer Printype" Responds with Becoming Modesty.

Officer Printype says: "I am overwhelmed by the ovation which has greeted my appearance in your midst. I am simply doing my sworn duty in ridding the Business and Financial Districts of the Bad Characters that for years have made Typewriters a menace to your eyesight. I have mercilessly exposed and relentlessly pursued these dangerous Typewriter Types, which are responsible for more cases of Defective Vision than all other causes combined. "Report direct to my Headquarters, in the Oliver Typewriter Building, Chicago, any machine whose type is violating the Optical Law and I'll have the offender haled before the Court of Public Opinion."



Printype — **OLIVER** Typewriter

Printype is owned and controlled exclusively by The Oliver Typewriter Company

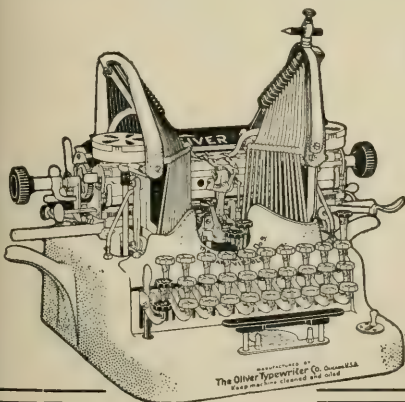
America rings with praise and applause for Printype. This superb new typewriter type has attracted more attention than any typewriter innovation brought out in recent years.

Hundreds of thousands of people have seen this new type and wondered what it was that made Printype Correspondence seem like a spoken message. There's virility, strength and charm in Printype correspondence. There's refinement and "class" and style.

Not because of its novelty—it's inherent in the type!

A Vast Improvement

Printype is designed in shaded letters and numerals, like the type in which books and magazines are printed. It is book type transformed and adapted to modern typewriter requirements.



This radical departure from the old style "outline" letters makes it possible to produce on *The Oliver Typewriter* a page of manuscript as clear and attractive as that of the finest book. The Oliver is the first and only typewriter that successfully prints print!

The Primary Reason

Printype resulted from our discovery that "outline" type, with its sameness, due to absence of shading, was harmful to the eyes.

The Silent Test

For months, without any advertising, we put hundreds of Printype Oliver Typewriters into actual service, in many diverse lines of business. We wanted the public's verdict. It came in a burst of admiration and a flood of orders that proved Printype a brilliant success.

Printype letters, wherever seen, excited the keenest interest. Business men who received their first Printype letter almost invariably answered post haste—"Where did you get that type?" Thus Printype captured the country without firing a single shot.

Price Not Advanced

The Printype Oliver Typewriter sells for \$100. You can pay at the rate of 17 cents a day. The "Printyper" is our latest and best model. The new type adds 25 per cent to the value, but not one cent to the price. A small cash payment brings the machine. (248)

Send Printype Coupon Now!

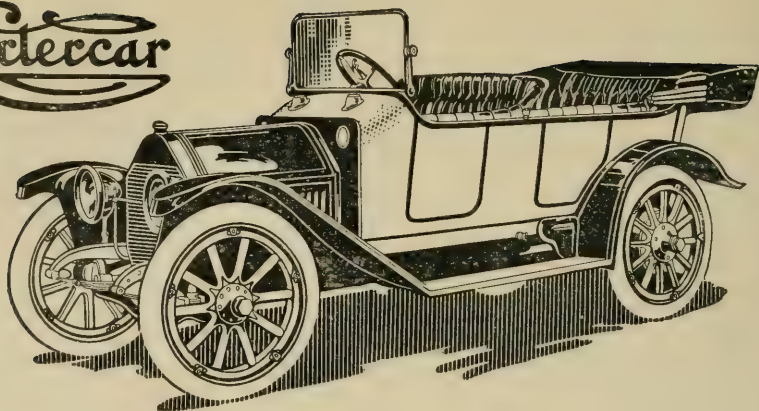
The Oliver Typewriter Company,
116 Prospect St., Cleveland, Ohio.

Tell Officer "Printype" to write me a letter and send me his book. I am interested.

Name.....

Address.....

If you or any one in whom you are interested contemplate going to a Business College, write us first and we will, without charge, supply you with some very valuable information on the subject.



Easy Riding— Double Tire Mileage!

You enjoy a Cartercar every mile of the way, over all kinds of roads, because it does not jerk nor jar. In changing speeds you simply move a lever forward or backward and change instantly and noiselessly from one speed to any other. There are unlimited speeds too.

This same feature also prevents wear on all parts—and especially on tires. Many owners tell us that they get twice the usual mileage. Just think what this means to you in your upkeep expense bills.

Gearless Transmission

A Cartercar has no gears in the transmission—no clutch. It is simple—so simple that it is trouble-proof. You have power to climb 50 per cent grades—unlimited speeds—which means service that you can not possibly get from any other car. If you want the best possible value from the money you invest in your car then you want the Cartercar. Let us prove these statements to your own satisfaction.

Cartercar Company, Pontiac, Mich.

MODEL 5A—Five passenger Touring Car. With electric starting and lighting system and complete equipment \$1700

MODEL 5B—A big, classy Roadster. With electric starting and lighting system and complete equipment \$1600

A black and white photograph of a forest scene. Sunlight filters through the dense canopy of trees, creating a dappled pattern of light and shadow on the forest floor. Several tree trunks are visible, some in the foreground and others in the background. The overall atmosphere is serene and natural.

Gleanings in Bee Culture

VOL. XLI. JULY 15, 1913, NO. 14.

TAKE ONE OF THESE

Special Offers on Gleanings in Bee Culture

if you want to get more profit and pleasure from your bees. You have read on the preceding page of the extra value we propose to give to readers of GLEANINGS IN BEE CULTURE through 1913. You know that our regular subscription price is \$1.00 per year (24 semi-monthly numbers). These combination offers afford still greater value.

Gleanings in Bee Culture

(ONE YEAR)

“

{ with the A B C and X Y Z of Bee Culture,
the leading text-book on beekeeping. } **\$2.50**

“

{ with Dr. Miller's Fifty Years Among the
Bees. } **\$1.50**

“

{ with W. Z. Hutchinson's Advanced Bee
Culture. } **\$1.50**

“

{ with T. B. Terry's great book, How to Keep
Well and Live Long. } **\$1.50**

“

{ with Milo Hastings' book on practical poul-
try culture, The Dollar Hen. } **\$1.50**

“

{ with the new revised edition of The A B C
of Potato Culture, by T. B. Terry and A. I.
Root. } **\$1.00**

“

{ with your choice of any of the following
books from the GLEANINGS library: Town-
send Bee-book, Doolittle's Year's Work in
an Out-apiary, Alexander's Practical Bee
Culture, Hand System of Swarm Control,
Natural History of the Honeybee. } **\$1.00**

“

{ with an Untested Italian Queen. (Queen
to be mailed at our convenience during the
season, when we have a surplus. } **\$1.50**

“

{ with a Root Standard Smoker (tin); diam-
eter of the barrel $3\frac{1}{4}$ inches. One of the
best smokers made, both in principle and
construction. } **\$1.75**

“

{ with a No. 2 Bee-veil. This veil is made of
cotton tulle with silk tulle face, and is ad-
justable to any medium-sized hat. It has
an elastic cord in both the upper and lower
hems. } **\$1.35**

“

{ with a pair of Bee-gloves. Our special bee-
gloves are made with long sleeves and of
heavy drilling for wear in the bee-yard.
(Sizes: Small, medium, or large). } **\$1.25**

Canadian postage on each of above combinations 30 cts. extra. Foreign postage 60 cts. additional. Many other combinations to choose from. Ask for our combination catalog.

USE THIS COUPON

I enclose \$.....for combinations checked.

Name

Address

Don't forget extra postage for Canada or foreign countries.

"falcon" Queens.....

Three-band and Golden Italians, Caucasians, and Carniolans

Untested, July 1 to October 1 . . . One, \$.75; six, \$4.25; twelve, \$8.00
 Select untested, July 1 to October 1, " 1.00 " 5.50 " 10.00
 Tested, \$1.50 each. Select tested, \$2.00 each.

All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are to be found on the reverse side of the cage cover. A full line of bee supplies and foundation manufactured by us at Falconer, N. Y. Write for samples of our foundation and Red Catalog, postpaid.

DEALERS EVERYWHERE.

Red Catalog, Postpaid.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. CO., FALCONER, N. Y.

Where the good bee-hives come from

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time" Send for Annual Catalog which will tell you who is your nearest Distributer.
 It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard G. B. Lewis Company, Watertown, Wis.



Established 1885

We carry an up-to-date
 line of
Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
 High Hill, Montgomery Co., Mo.

THREE-BAND ITALIAN QUEENS

I am now in position to fill your orders for queens of a superior strain which are noted for their gentleness, honey-gathering qualities, and there are none better for wintering. Special attention is given to orders for BEES BY THE POUND WITHOUT COMB, with or without queens; also nuclei and full colonies.

New England Distributor
 of Beekeepers' Supplies
 Catalog Free

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 Lyonsville, Massachusetts

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That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think!

The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. . 10c a single copy.

Edward F. Bigelow, Editor,
The Agassiz Association, Inc.

ARCADIA:

Sound Beach, Connecticut

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled; combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—Fancy and No. 1 white comb, 16 to 17; fancy white, 11 to 12. Beeswax, 30.
Boston, July 5. **BLAKE-LEE CO.**

INDIANAPOLIS.—Market is now practically bare of fancy white comb honey. No. 1 white is selling at 16 to 17; amber comb is in slow demand, and at varied prices. Best extracted sells at from 11 to 12 in five-gallon cans, according to quantity. Beeswax is in good demand, and producers are being paid 30 cents cash or 32 in trade.
Indianapolis, July 5. **WALTER S. POWDER.**

CHICAGO.—At this writing some of the new comb honey has come on the market. The A No. 1 to fancy grades have sold readily at 17 to 18 cts., and the No. 1 at about 1 ct. per lb. less. No other grades have yet appeared. This, of course, is all white comb in one-pound sections. No sales have yet been made of extracted honey of this year's harvest. Beeswax is steady in price at from 30 to 32, according to color and cleanliness.

Chicago, July 3. **R. A. BURNETT & Co.**

ZANESVILLE.—Best grades of white comb honey still command 18 to 19 cts., but the unusually good honey-flow (locally at least) is likely to result in considerable weakening of the market. Best white extracted, which has been selling at 9 to 11, according to quantity, will probably drop a point or two within the next few weeks. For beeswax we now offer, in trade, 31 to 32, according to color and quality; in cash, 29 to 30.

Zanesville, July 5. **EDMUND W. PEIRCE.**

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributer. G. B. Lewis Company, Watertown, Wis.

Now, Then, for Your Early Bee-supply Orders!

Send us a list of the Bee Supplies you want.
Our prices will astonish you.
Also send us your old combs.
We will render your wax and save you money.
Write for particulars.

THE FRED W. MUTH CO.

"The Busy Bee Man"

204 Walnut Street

Cincinnati, Ohio

An Active Season is Here

A carload of perfectly new goods is just on hand from the factory, and another car is expected any day, and the factory has booked us for four cars. This brings up our assortment so that we can now furnish almost any thing listed in the catalog at once.

Hives should be ordered at once if they are to be ready for swarms. Frames, and other inside fixtures too, should be put together now.

If you are wanting any special goods, orders should be made at once. Other cars are coming regularly from the factory, and we can save you considerable in transportation charges by having your goods come with ours in the car.

The mailing of our new catalog was completed some time ago. If you are not on our mailing list send us a postal-card request for this catalog.

If you want to buy in quantities considerably larger than quoted in the catalog, give us a list of your needs and we will quote price accordingly.

If you have never tried Root quality goods, make a beginning this season. You will not be disappointed in results. Our branch is maintained for service in this line and we can give it to your entire satisfaction.

We are sole agents in Ohio for the Roller Tray Incubator and Brooder—the best in the market. Write for our catalog.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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NEW YORK.—We are looking forward to a good season for both comb and extracted honey, as the market is pretty well cleaned up of last year's stock. There is quite a lot of Southern honey this year, as Porto Rico, Cuban, Mexican, and a little Florida. White comb honey will bring from 13 to 16 cents per pound. Fancy and white extracted from 7½ to 9 cents. CHAS. ISRAEL & BROS.

New York, July 8.

CINCINNATI.—The market is in good shape to receive the new crop of honey, which will be a big one in this part of the country. Our advice is, that the early bird will get the price, and those who wait will be sorry for it. We can use quick shipments of comb honey, and are selling what we have at from 15 to 16½ cts. by the case, some cheaper at wholesale. Extracted honey for table use we are selling at 7½ to 10, and amber honey in barrels at 6 to 7½, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 30 cts. delivered here.

Cincinnati, July 8. THE FRED W. MUTH CO

ST. LOUIS.—The receipts of Southern honey in barrels and five-gallon cans continue to arrive, and prices are established at 6½ cents in barrels and 7 in cans, for pure light-amber honey. There is no California or other Western honey to speak of in this market, and quotations are nominal at 8 to 8½ for white, and 8 for light amber, all in five-gallon cans. Comb honey is not in demand at all, and the receipts are also small. The quotations are nominal for fancy white comb honey at 16 to 17; No. 2 white, 15; light amber, 13 to 14; by the case, fancy white comb honey, \$3.65 to \$3.75; No. 2 white, \$3.25 to \$3.40; amber, \$2.75 to \$3.10, according to quality. Dark or broken honey is almost unsalable. Beeswax is in good demand at 32 for prime. Impure and inferior sells for less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., July 7.

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Medina, Ohio

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. . . ROOT'S . . .

POWER HONEY - EXTRACTORS

Our new catalog is full of information about these labor-saving machines. With the difficulty of getting competent help, the power extractors are being sold largely in this and foreign countries, and the present demand is far greater than ever before. Read what a California producer says in a letter to a disinterested party, which we are permitted to see and publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root Automatic extractor, as I believe it is as near perfection as can be. This machine runs so easy that a few turns to get it up to speed is all that is necessary; and the men, while using the No. 17, which I formerly had, could average only 1000 lbs. per day, while with this machine they can average 2000 lbs. with but one additional man. No apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, and financially to the honey-producers' interests.

Elk Grove, Cal.

B. B. HOGABOOM.

For full particulars see our new catalog

THE A. I. ROOT COMPANY, MEDINA, OHIO

New York, 139-141 Franklin St. Chicago, 213-231 Institute Place. Philadelphia, 8-10 Vine St.
Des Moines, 565 W. 7th St. St. Paul, 1024 Mississippi St. Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W. Mechanic Falls, Maine
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Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

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CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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RUSH ORDERS

BY MAIL.—Has your “forgettery” been working? And right this minute you need foundation or other items. See page 1 of our catalog, and it gives parcel-post rates on various articles.

BY EXPRESS.—Larger shipments than can go by mail we can rush out at once. Parcel-post and express orders receive our first attention.

BY FREIGHT.—Our rule is “ship same day the order is received,” and we break it only when absolutely necessary. Notice that Lansing is the railroad center of Michigan from which freight shipments can be delivered quickest.

And we fill all orders with Root's goods. Just remember that too. Send for catalog. Beeswax wanted.

M. H. HUNT & SON, LANSING, MICH.

OPPOSITE LAKE SHORE DEPOT.

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Send 10 names of fruit-growers and 10 cents, and get “The Southern Fruit Grower” four months. Tells all about fruit-growing, gardening, poultry-raising, etc., in the South. Contains from 32 to 40 pages each month. Address

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Celebrated Pedigreed Strain

My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLEY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States. Never had foul brood.

Swarthmore Apiaries,
Swarthmore, Pa.

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You will soon need a bill of supplies. Let us quote you before placing your order. We please thousands, why not you? Catalog free.

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Apiaries, Glen Cove, L. I.

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Superior winterers; descriptive list free. Bees by the pound. Untested, \$1.00; select tested, \$1.50. Plans “How to Introduce Queens,” 15c; “How to Increase,” 15c; both for 25c. E. E. MOTT, Glenwood, Mich.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

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TOLEDO

“Griggs Saves Your Freight”

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

Root's Shipping Cases for Honey

We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. . . NEW 60-POUND CANS, two in a case, a specialty. . . FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.
“Griggs is always on the job.”



**"If Goods are wanted Quick,
send to Pouder."**

Bee Supplies!

When you are in urgent need of bee supplies you will likely consider two details—quality and promptness. For about a quarter of a century I have handled the Root quality of goods, shipping from Indianapolis at the factory schedule of prices. I believe it is generally admitted that as to material, workmanship, and accuracy, their equal is not to be had elsewhere. An immense stock on hand at all times, and no old or inferior goods offered at any price. Nearly every order is filled within a few hours after arrival, and you will agree with me that this feature is the finest advertising that I have ever been able to place on my house. We have so many railroads and express companies at our command that shipping promptly from here is not a hardship. The parcel post is a boon to all of us, and these packages are taken up by Uncle Sam three times a day.

Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and I should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue

"By Airship"

A customer writes, "You must have sent my last order by airship, it got here with such lightning speed."

Handicapped by a flood loss that necessitated an entirely new stock just at a time when the Root factory was crowded with orders, it has taxed my resources to the utmost to maintain my reputation for promptness in the delivery of supplies. The most active season for a number of years has made the task doubly difficult. Possibly a few customers may have been inconvenienced at the outset. I am glad to say, however, that my stock is now practically complete, and new goods are arriving right along. With the better facilities of my new location, and additional help for the remainder of the rush season, I feel that all customers, old and new, will be served here with as little delay and as great satisfaction as would be possible anywhere.

Please bear in mind that all factories and supply dealers are now experiencing a rush of orders, and are severely taxed to fill orders as promptly as their customers might desire. As possible, place your order a few days before goods are actually required, and you will not be disappointed.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

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PRACTICE

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Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent
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Patent Counsel of
The A. I. Root Co.

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WORKMANSHIP
CAREFUL PACKING
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G. B. Lewis Company, Watertown, Wis.

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"LINE BRED" for the past 27 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, \$1.00; six for \$5.00; dozen for \$9.00. Select untested queen, \$1.25; six for \$6.00; dozen for \$11.00. Tested queen, \$2.00; six for \$9.00; dozen for \$15.00. Select tested, \$3.00. Best breeder, \$5.00. Extra select, the very best we have, \$10.00. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & CO., Lake George, New York.

The Beekeepers' Review . . .

was fortunate in securing from its correspondent, Mr. J. J. Wilder, his write-up of his successful system of management of 3000 COLONIES OF BEES IN 50 YARDS. As all up-to-date honey-producers will be interested in this great series of ten articles, beginning in the July number of the REVIEW, we will for 50 cts. mail the REVIEW for the last half of 1913, containing the first six articles of the series, and in addition (to those who ask for it) send the April and May numbers of the REVIEW containing the report of the National meeting at Cincinnati. Those two numbers alone contain 96 pages. Subscribe to-day! Don't miss a single number containing the series, 3000 COLONIES IN 50 YARDS MANAGED FROM ONE OFFICE. . . . Address, with remittance,

The Beekeepers' Review, . . . Northstar, Michigan

Swarming is Here!

Are you prepared for the increase? Be forehanded, and have your hives all ready. We carry a large line of hives and other goods. Our catalog for 1913 will be sent on request.

Sections and Foundation

A half million sections on hand, and a ton or more foundation ready for instant shipment.

THE A. I. ROOT CO., SYRACUSE, N. Y.

CELLAR WINTERING

A long article on this subject is to appear in the AMERICAN BEE JOURNAL beginning with August, 1913, number, continuing through September, 1913. It is written by

DR. C. C. MILLER

himself a cellar winterer. Dr. Miller gives the results of his experiences and experiments, with comments on the same, in a manner interesting and instructive to all. The October number of the same journal will contain criticisms of the article by Dr. E. F. Phillips, of the Government Department, with Dr. Miller's replies.

The editor of the AMERICAN BEE JOURNAL, Mr. C. P. Dadant, is in Europe for a few months investigating the different races of bees, etc., there. Read what he has to say in the coming numbers.

Subscribe to the AMERICAN BEE JOURNAL now. Only \$1 00 a year (postage 10 cts. extra to Canada; 25 cts. to foreign countries, per year).

American Bee Journal . . . Hamilton, Illinois

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FALLS**

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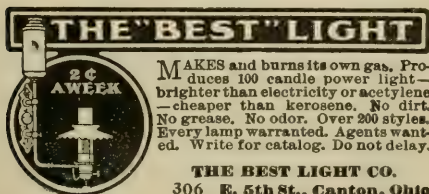


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A cross between the Italian and Carniolan. Most excellent honey-gatherers, but not so gentle as Carniolans. While they last, 90 cts. each; dozen, \$8.00.

Bees by the pound and nuclei through July. Ask for prices.

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Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50. Try me for rush order.

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is again ready to fill your orders for queens the present season. Law's Red-clover Italians are as good as can be had.

One firm who bought over 1100 queens from me in 1912 says, "Your queens are very satisfactory." We are booking orders now, and we are going to do our level best to mail all queens by return mail when so ordered. My bees are absolutely clean and free from all disease.

Queens sent out under the usual guarantees. Prices: Single queen, \$1; six for \$5. Breeding queens, none better, each, \$5.

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Famous Italian Queens!

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have won a world-wide reputation for prolificness, hardiness, gentleness, and honey-gathering. Our queens are reared scientifically from breeders perfected by years of elimination. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating.

Satisfaction and safe arrival guaranteed.

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Untested, 75 cts.; dozen, \$8.00.

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FAMOUS QUEENS direct from ITALY!

Bees more beautiful, more gentle, more industrious; the best honey-gatherers. **Universal Exposition, St. Louis, Mo., 1904**, the highest award. Extra breeding queen, \$3.00; selected, \$2.00; fertilized, \$1.50. Write.

Hartford, Conn., April 20, 1907.
Please find enclosed \$11.00 for six queens. I hope to get as good ones as I received before, and if I do I shall want more.

A. W. YATES.

Norwichtown, Conn., Sept. 14, 1912.

I send you money order for \$3.00. I wish two of your fertilized queens. I have seen some of your bees owned by Mr. Yates, and I like them.

ALLEN LATHAM.

ANTHONY BIAGGI, Pedevilla near Bollinzona, Italy
Please in writing mention GLEANINGS.

QUEENS AND BEES

An improved superior strain of Italians is what **QUIRIN RAISES**. Our stock is Northern bred and hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis., and July 20th (of same year) he wrote us saying they did just splendid, as at that date they had already filled their supers, and that he would have to extract them. We have files of similar testimonials.

Prices for rest of season	1	6	12
Select queens	\$.75	\$ 4.00	\$ 7.00
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Two-comb nuclei, no queen ..	2.25	12.00	22.00
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Add price of queen wanted with bees. Bees by the pound, nuclei, and colonies; if wanted before June 1, add 25 per cent. **QUEENS NOW READY**. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO

Miller's Strain of Red-clover ITALIAN QUEENS

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Bred from superior breeders for business; gentle; no better hustlers; bees roll honey in; three-banded; **Northern-bred**; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored strains. Untested, 75 cts.; six, \$4.00; dozen, \$7.50. Select untested, \$1.00; six, \$5.00; dozen, \$9.00. Satisfaction guaranteed.

Isaac F. Miller, a queen specialist and breeder for sixteen years, previously of Brookville, Rt. 2, Reynoldsville, and lately of Oil City, Rt. 2, Pa., is agent and breeder for E. L. Miller. Send all orders to

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GOLDENS.—An opportunity to get Ben Davis' famous utility Goldens. Yard stocked from his apiaries. Breeder kept 16 frames filled until put in nucleus in June. Drone colonies headed by mothers of strain producing over 178 perfect $4\frac{1}{4}$ sections last flow. Especially immune to European foul brood. **THREE-BANDS.**—A fine strain of prolific dark queens—drone mothers from a strain which produced over 172 perfect $4\frac{1}{4}$ sections last flow. An excellent honey-gathering grade; disease-resisting; the best of winterers.

All queens reared in full colonies during honey-flow; mated in four-frame nuclei, which gives large, vigorous, and prolific queens. Purity of mating, safe arrival, satisfaction, freedom from disease guaranteed.

Either Strain, Select Tested, \$2.50. Tested, \$1.50. Untested, 80 cents.

Write for prices on a few excellent breeders.

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THIS is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood. Price \$1.10 postpaid by

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If you have any extracted or comb honey to offer, send us samples of quality: state quantities, and now packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

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G. B. Lewis Company, Watertown, Wis.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—White-clover honey of the finest quality in 60-lb. tins. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—Finest quality clover and clover-bass-wood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

White comb honey, No. 1 and fancy in one grade, \$3.50 per case; six cases to carrier (24 sections to case). QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—New sweet-clover honey, 7½ cts. per lb., in 60-lb. cans; 2 cans per case F. O. B. Cochran, Ala. J. C. WEAVER, Cochran, Ala.

100 business cards, envelopes, note heads or shipping tags printed and delivered for 55c; 500, 98c; 3000 gummed honey labels delivered, \$1.00. PEARL CO., Clintonville, Conn.

FOR SALE.—Fancy extracted white clover honey in barrels, 60-lb. tin cans, or in tin pails. Write your wants and get prices. Sample 5 cts. Honey is well ripened and thick, none better on the market. EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

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WANTED.—White-clover comb and extracted honey. Give lowest prices. L.K. HOSTETTER, Rt. 6, Lititz, Pa.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb and extracted honey, best quality, quick. Carolina product preferred. C. W. HARMON & Co., Asheville, N. C.

We will pay the highest cash price for thoroughly ripened extracted honey. Write us, stating quality and quantity, with prices F. O. B. your station. SPENCER APIARIES, Nordhoff, Cal.; St. Louis, Mo.

WANTS AND EXCHANGES

WANTED.—To sell one, two, and three frame nuclei with untested queens, cheap. WM. ATCHLEY, Beeville, Texas.

WANTED.—To hear from owner who has a good farm for sale. Send description and price. NORTH-WESTERN BUSINESS AGENCY, Minneapolis, Minn.

WANTED.—To buy a small place with bees in an A No. 1 location, with openings for a number of out-yards. New York State preferred. Mention the number of honey-flows and the usual average per colony from each, and other particulars. If possible, send views of property and surrounding country, which will be returned if requested. Address Box 13748, A. I. Root Co., Medina, Ohio (or New York City).

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Bee-ranch in south Texas for sale. Just out of city limits of San Marcos, a splendid location for an apiary or poultry-ranch—no bees near; splendid bee-range. Good market for all kinds of produce; nice modern cottage. One of the most healthful locations in Texas. If interested, address J. P. CALDWELL, San Marcos, Texas.

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Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

FOR SALE.—My home on D. & R. G. R. R.; 40 acres, 15 alfalfa, 5 wheat; 1-3 cu. ft. water; 7-room comfortable bungalow; barn; 34 colonies Carniolan bees, complete outfit; 8 barrels honey guaranteed this season. Best climate in Colorado for consumption. Price \$2400 (\$500 cash). S. W. MORRISON, M. D., Oxford, La Plata Co., Col.

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FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—Best No. 1 sections, 1000, \$4.40; 2000, \$8.60; 3000, \$12.60; 5000, \$20.00; No. 2, 50 cts. less. Plain, 25 cts. less. Five white-pine hives and supers, \$7.25; ten-frame, \$8.00; 100 Hoffman frames, \$2.60. Best goods, lowest price. Catalog free. H. S. DUBY, St. Anne, Ill.

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Red-clover Italian queens, untested, 75 cts.; tested, \$1.25; breeders, \$5.00. J. H. GIBBS, Berlin, Md.

Golden Italian queens, untested, \$1.20, after June 15. E. H. BUCKMAN, Chester, Pa.

Golden Italian queens, \$1.00 each; six for \$5.00. Warranted. J. B. CASE, Port Orange, Fla.

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Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

Queens by return mail. Mismatched Italians 40 cts. each or \$4.00 per doz. LATHAW HONEY CO., Carlisle, Ind.

Famous North Carolina bred Italian queens for sale. As good as the best; beautiful, prolific, fine hustlers for honey. No foul brood. All cells are reared in full two-story hives running over with bees at all times. That gives a queen that is a wonder. See my advertisement in GLEANINGS, June 1 and 15, 1913. Red clovers a specialty. My Goldenes are good. Each grade, untested, 75 cts.; \$7.00 per dozen. Select untested, one, 90 cts.; \$8 per dozen. Tested, \$1.25; select tested, \$1.50; extra select tested, \$2.00; breeders, \$3.00 and \$5.00.

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FOR SALE.—Eighteen colonies Italian bees in nearly new ten-frame hives.

REV. EDWIN EWELL, Litchfield, Mich.

Fine Italian queens, three-banded, prolific, hardy, gentle. Untested, 75 cts. each; 6 for \$4.25; dozen, \$8.00. J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

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Hardy northern-reared queens of Moore's strain of Italians, ready June 15. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. P. B. RAMER, Harmony, Minn.

I will sell untested Italian queens at 60 cts. each, \$5.00 per dozen; no disease. Safe arrival guaranteed. EDWARD O. MESERVE, Ventura, Cal.

Goldens that are golden, pure Italian queens \$1.00 up. Send for booklet, but do not send rush orders. GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

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Virginia three-banded Italian queens, untested, 75 cts.; tested, \$1.00. All dead queens replaced free. Ready May 15.

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Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address

DEROY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—Full colonies of Italian bees with young queen, \$6.00; nuclei, \$1.25 per frame; queen extra. Write for prices on queens.

ARVIN, NUSBAUM CO., Meldrim, Ga.

FOR SALE.—New England Italian queens; untested, 75 cts.; tested, \$1.00; breeder, one year old, \$3.00 to \$5.00; 27 years' experience; foul brood unknown. E. S. WATSON, Rt. 2, Madison, Maine.

FOR SALE.—After June 20, fine Golden Italian queens, 75 cts. each; 6 for \$4.00; few choice breeders at \$3.00 each. Cash with order. Good honey-gatherers. EDWARD REDDOOT, box 43, Lysander, N. Y.

FOR SALE.—Untested Howe strain of dark Italian queens, select mated. No other bees in mating distance. Send for circular. Orders filled by return mail; 1, \$1.00; 6 for \$4.50; \$8.50 per 12.

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FOR SALE.—F. O. B. Petersburg, Va., fifteen full colonies of bees in new Danz. and Root hives, with supers in good condition. Also 150 1-lb. sections of nice white new honey. No reasonable offer refused. M. E. FERRELL, 815 7th St., N. W., Washington, D. C.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON,

3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.

WM. S. BARNETT, Barnett's, Virginia.

Italian queens. Gentle three-banded stock, bred for honey-gathering ability. Good red-clover workers and good winterers. Prompt service, fair prices, and no disease. Untested queens, 75 cts. each; 6 for \$4.25; 12 for \$8.00; 50 for \$32.00. Safe arrival in the U. S. or Canada, and guaranteed to please.

H. C. SHORT, Winchester, Ohio.

Bees and Queens.—At the close of our queen-rearing season in August and September we will unite several hundred nuclei. We offer the going queens removed from these nuclei as follows: Untested, 50 cts. each; \$5.00 per dozen; tested, 75 cts. each; \$8.00 per dozen. These queens are all bred from best Doolittle and Moore stock. Delivery guaranteed. SPENCER APIARIES CO., Nordhoff, Cal.

Queens by return mail, untested, \$1.00 each; six, \$5.00; \$9.00 per dozen. Italians and Carniolans. WM. ATCHLEY, Beeville, Bee Co., Texas.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Queens by return mail. We are now up with orders, and hope to fill all orders promptly. Three-banded Italian queens, untested, best honey-gathering strain, 1 for 75 cts.; 6 for \$4.25, 12 for \$8.00. No disease. Satisfaction or money back.

W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—Italian queens, reared by best-known methods of a \$10 Doolittle breeder and select imported stock, mated to select drones. I guarantee queens to be A1 in every way. Virgins, 50 cts. each; untested, 75 cts.; 12 for \$8.50; 24 for \$16.50. J. B. HOLLOPETER, Pentz, Pa.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Everything guaranteed.

C. B. BANKSTON, Buffalo, Leon Co., Texas.

The two B's of quality. Italian bees and Sicilian Buttercups. For all that is best, unexcelled. Untested queens, \$1.00 each, six for \$5.00. Buttercup eggs from prize-winning pen, 15 for \$4.00; "A" pen, 15 for \$2.50; 30 for \$4.00.

H. WILLIAM SCOTT, Barre, Vt.

Queens from Georgia apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested, \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb, packed any size to suit customer. Prices and samples sent free.

JOHN W. CASH, Bogart, Ga.

FOR SALE.—Guaranteed purely mated three-banded Italian queens. I recommend four points—gentle, prolific, extra good honey-makers, good winterers. J. E. Hand strain. State inspector's certificate. Queens by return mail or your money back. Select untested, one, 80 cts.; 6, \$4; 12, \$8; 25, \$15.

J. M. GINGERICH, Rt. 3, Arthur, Ill.

Three-banded Italian queens and bees. Untested queens, 75 cts. each; six, \$4.25; twelve, \$8.00; tested, \$1.25 each; six, \$7.00; twelve, \$12.00. For select queens, add 25 cts. each to the above prices. Nuclei without queens, one-frame, \$1.50; two-frame, \$2.50; three-frame, \$3.00. For nuclei in quantity lots, and bees by the pound, write for prices and circular.

ROBT B. SPICER, Wharton, N. J.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

Fine mated homing pigeons, \$1.50 a pair, or will trade for bees. L. FRANCISCO, Mosinee, Wis.

Cheap for cash, fruit from 400 pear trees. Guaranteed delivery of fruit.

J. B. MARSHALL, Big Bend, La.

Golden Seal.—Cutting, plants, and seed-bearing roots for sale. Ask for prices.

J. A. HONABARGER, Warsaw, Ohio.

AUTOMOBILE FOR SALE.—E. M. F. 30 touring car. Full equipment. Reference The A. I. Root Co. F. E. NICHOLS, Medina, Ohio.

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SINGLE-COMB WHITE LEGHORNS.—\$1.00 each; pullets and cockerels, yearlings and cocks; shipped anywhere. As many as desired. Write for catalog. WOODWORTH FARM, Wilton, Ct.

INDIAN RUNNER DUCKS

Pure-white I. R. ducks, foundation stock direct from Spencer flock, California. Grandest strain on earth. Lay large pure-white eggs. American standard Fawn and White I. R. ducks. Grand breeding stock for sale. Write me your wants. I will start you with the best. Satisfaction guaranteed.

C. O. YOST, Box D, Rt. 4, Winchester, Ind.

HELP WANTED

WANTED.—Assistant in apiaries. Preferably handy with machinery. State age, experience, and wages, first letter. F. B. CAVANAGH, Hebron, Ind.

WANTED.—A young man to learn bee business. State age and experience in first letter, with reference. One from the South preferred.

H. H. ARNOLD, Trinidad, Cuba.

BEEKEEPERS' DIRECTORY

If you need queens by return mail, send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

A. I. ROOT

POULTRY MUSTARD VERSUS MUSTARD BRAN FOR CHICKENS.

A year ago we made mention of mustard bran for chickens, costing only about a fourth as much as ground mustard; but since then we have been assured by the R. T. French Co., manufacturers of mustard, that real mustard bran is of little or no value for chickens. Corning made mention of it in his book because he got hold of some bran that was imperfectly cleaned, containing enough mustard to make it of some value. Since then I have seen a letter from Corning saying they had changed from mustard bran to the ground mustard prepared for poultry by the French Co. This poultry mustard is the same thing as the mustard of commerce, except that they do not go to the expense of getting out every particle of the bran, which would make it much more expensive. This explanation is made so that our friends may not make a mistake in purchasing the bran, which, I am told, is sometimes sold as low as 1 ct. per lb.

TOBACCO ADVERTISEMENTS, ETC.

While we are urging and insisting that our daily papers in the great cities shall cut out advertising of any intoxicating drinks, it may be undertaking a little too much, all at once, to attempt in a like manner to say that tobacco advertisements shall be regarded in much the same light. About a year ago

I asked the question whether our Ohio boys should be instructed in growing tobacco by our Ohio Experiment Station. Director Thorne replied that, while he agreed with me in the main, so long as so many of our public men continue to use tobacco it would be a hard matter to stop it. But so far as I know, no tobacco experiments have ever been made at our station at Wooster. It is true, however, that a branch station in the southern part of the State has been making a test, and has sent out a bulletin in regard to growing tobacco.

Well, what brings this matter before me just now is this: The editor of our *Medina Gazette* has to my knowledge recently turned down a tobacco advertisement that would have given him \$530 for the space occupied. I suppose there are more editors who are doing much the same thing—more than, perhaps, anybody knows about. May God in his infinite love and mercy give them their just reward. It may look pretty hard, many times, to lose so much money when it is sadly needed to keep up the finances. But let these good brothers remember the promise, "Be not weary in well doing, for in due time we shall reap if we faint not."

THE ONLY CORN MAGAZINE IN THE WORLD. CORN.

The above is the title of a beautiful magazine, published by the Corn Publishing Co., Waterloo, Ia. It is not only beautiful but useful. My impression is that each of the two numbers, May and June, that have been submitted to me, are worth a dollar, as that is the price of the magazine for a year. If you whose eyes meet these pages do not know what is being done in growing corn in these latter days, you ought to know. If you raise only a little piece of sweet corn in your garden, you ought to have this magazine; and if you grow an acre of field corn you certainly ought to have *Corn*. And if growing corn is your business, the magazine may be worth a hundred dollars to you. I suppose all the world knows what the boys of our land are doing in the way of growing corn.

Among the beautiful pictures in this corn magazine is one of the corn boys—a great lot of them. One of them has actually grown 135 bushels on a single acre, and this magazine tells how he did it. If a boy can do it, why can not you? Don't you think that we old gray-headed chaps ought to be ashamed of ourselves if, with all our past experience and observation, we are not able to do as well as a boy sixteen years old, for that is what this boy, Arthur Hoese, did in Central Minnesota.

Now, do not imagine that the girls are ruled out. The women of our land are fast demonstrating that they can do almost any thing that a man can do, and "then some." In a like manner we are beginning to comprehend that a girl in her teens, when she is well woke up, can give her mother some lessons that her mother never dreamed of. May God be praised, not only for our boys and girls, but for what the boys and girls are just now accomplishing. These corn-growing boys are not the kind of boys who pay out their nickels for beer, and I do not believe they waste many nickels at the soda-fountains either. God speed them.

THE "SOLOMON'S ISLANDS GOURD," OR SO-CALLED "GUADO BEAN."

For a year or two back I have seen mention made of the "Solomon's Islands gourd" in tropical periodicals; but the claims made for it were so extravagant I passed it by as a fraud, and I can only remember that the claims made for it were that it is a sort of bean or gourd, or something half way between a bean-pod and a gourd. And this vegetable, or whatever you call it, will sometimes grow six feet long—that is, the fruit itself is six feet long, and that they average about a yard in length. They are good for food, and half a bean-pod or less will make a meal for a "whole family." I threw the paper aside, and so I recollect only a very few claims that were made for this fruit. But the matter was revived when I received a letter from one of our friends down in Texas that reads as follows:

I am inclosing you a clipping from a San Antonio paper; and as you are always interested in new things I want you to read about this great Australian vegetable. I am sending for eight seeds to-day, and thought of you and your write-up in GLEANINGS of the dasheen and other vegetables.

Laredo, Texas, April 4. HENRY BORCHERS.

I at once wrote our friend that if he succeeded in getting me some seed I would gladly pay him 50 cents for a couple of them; and I am happy to tell you that on June 21 they came to hand. The seeds somewhat resemble those of the squash, but they have a peculiar shape, somewhat different from any thing else. They were planted promptly, and in just about ten days one of them was up, and is now, July 7, growing quite rapidly. I am afraid the frost will catch mine here in Ohio before the great long fruit is fit to use; but I am going to push it with all my skill. If any of the readers of GLEANINGS can tell me any thing more about this Solomon's Islands gourd, I should be glad to get it. The clippings our friend refers to were returned or I would give place to them here. Is it not possible that this is another of "God's gifts" to this world of ours?

We have already an ornamental bean in Florida with pods over a foot long; but I am told it is of no value except for the immense flowers it produces.

DASHEEN TUBERS FOR SALE, ETC.

In the department of Special Notices in our last issue I copied an advertisement of the Crenshaw Brothers' Seed Co., of Bradentown, Fla. I have just now learned from them that they have been obliged to advance the price of the bulbs to 30 cents a quart; and I presume it will be too late to try growing them here in the North before another season. Below are the directions they send out:

DASHEEN A RIVAL TO THE POTATO.

Dasheen is a staple article of food in the tropics. It is related to the ornamental caladium, or elephant-ear, the taros, and to the semi-wild taniar of the Southern States. Its tubers are similar in composition to the potato, but much drier, containing about ten per cent more starch and from fifty to sixty per cent more protein. The flesh of the large tubers is usually grayish violet color when cooked, but this does not affect the flavor. Dasheen should always be cooked before using. When properly baked and served, it is meaty, having a flavor richer than that of the white potato—more suggestive of boiled chestnuts.

CULTURE.

The dasheen requires rich, moist, and well-drained sandy soil. For best results mix a liberal amount of well-rotted stable manure with the soil; if very sandy it is a good idea to add some potash. Planting should be done as early in the spring as possible so as to give the tubers ample time to mature, as it requires from five to six months. Plant the tubers from two to three inches deep, in hills about three feet apart, rows four feet apart. Keep free from weeds, and work the soil toward the plant.

Harvesting should be done before frost, and the tubers should be allowed to remain in the sun several days so as to become thoroughly dry.

REDBUGS, ETC., UP TO DATE.

During the past winter, and along in March and April, the redbugs were unusually bad in our Florida home. About the same time, by some mishap, chicken lice got among some of our sitting hens; and the two together for a time called for much patience and humility. When Mrs. Root asked if my faith was bright enough and strong enough to say, "I am glad to see them," as I said about the squashbugs, I replied that I believed that Providence had sent them in order that I might have a real close acquaintance, and thus be enabled to tell the friends through GLEANINGS how to wage a successful warfare. I wrote to the Florida Experiment Station, but did not get much help. I then applied to the Bureau of Entomology, at Washington, and was rejoiced to get a pamphlet of six pages picturing the little "animal," and giving

very full directions. The title of the bulletin is "Harvest Mites, or Chiggers." From this pamphlet I make the following extracts:

The mites naturally attack first those portions of the body which are most exposed—those nearest the ground. They crawl into the stockings and penetrate the skin about the ankles, frequently below the shoe tops, and are usually found most numerous below the knee. According to the late Dr. John Hamilton, a physician as well as entomologist, the harvest mites enter the larger sweat tubes or pores of the skin; and as these tubes are very tortuous, the progress of the mites is necessarily slow, from eighteen to thirty-six hours being required for them to reach the end. When the lesions caused by these mites are unusually numerous, the sufferer becomes feverish, and sleep is much disturbed. Sometimes the afflicted one becomes frantic, and lacerates his flesh by too vigorous and frequent scratching. Erysipelas is known to follow severe attacks, and death resulting from blood poisoning is recorded. These more serious results of infestation are, however, exceptional, and, as with the fatalities which in rare cases follow the ordinarily merely painful or annoying "bites" of many insects, undoubtedly point to an impurity of the blood.

If a bath is taken in hot water, or water containing salt or strong soap, within a few hours after exposure, no ill effects will be experienced. After a longer exposure a bath has practically no effect, and direct remedies are necessary.

Sulphur is a sovereign remedy for mites, and is the best preventive of attack. When exposure is unavoidable, and where vegetation is not more than 2 or 3 feet high, a sure preventive is found in sifting flowers of sulphur into the underclothes from a little above the knee downward and into the shoes and stockings, or it may be rubbed over the legs and ankles. Naphthalene has been successfully used in the same manner in Mexico by Dr. L. O. Howard, and in Cuba by Mr. E. A. Schwarz. While the sulphur, being inodorous and perfectly effective, is undoubtedly preferable against harvest mites alone, naphthalene is a safeguard against various forms of man-infesting tropical insect pests. Vaseline, pure or mixed with sulphur, will serve the same purpose, but is not so agreeable on account of its oily nature and the certainty of its soiling the clothing.

Professor Rolfe, of the Florida Experiment Station, informs me that the sticktight flea, often called "chiggers" (that troubled our grown-up fowls by getting on their combs as well as getting on people) within two or three years have almost entirely disappeared. He had not seen one of them for two winters past. My impression is that all these pests, like gnats and mosquitoes, will gradually be eliminated, especially if we go at it understandingly.

I wish to refer to one statement in the government bulletin, to the effect that these things are more annoying and painful where there are *impurities in the blood*. This probably also accounts for the fact that some people are so much more annoyed than others. Get your system into good robust health by eating only two meals a day of good wholesome food, daily baths, etc., and very soon the chiggers, redbugs, and harvest mites will give you a wide berth.

THE REDBUG OF THE SOUTH; SOMETHING MORE
FROM MADELINE PRUITT.

In GLEANINGS for Aug. 1, 1912, p. 499, L. A. Cameron says I'm overdone on the redbug question. When I said "everywhere," of course I meant wherever their natural abode is. I didn't suppose they would be found in water, swimming about like fish, in pecan-kernels, on snow-capped mountains, etc., nor at all times of the year, for they, too, have their season. Neither is it a mistake as to their rearing offspring in the flesh. As to the grease remedy, of course one must apply it as soon as possible, and not delay until the swelling is high, and the insect buried too deeply for the grease to reach its foothold. Nor did I anywhere state that every one was pestered with them. As to the editor's statement about not being bothered with them in winter, there is no doubt about that; for that is not their season. From the last of March, all April, May, June, and late in July, is their main flourishing season. If spring is late and dry they do not appear at all. They abound in most weeds, especially broomweeds and horehound. Then, too, the editor appears to think that I imagine all itches are caused by redbugs, such as hives, summer heat, poison oak, cowage, vine-poison, etc., when anybody should be able to distinguish between them.

Itching sores caused by redbugs are scattered over the body. Single pimples, and in twos and threes, after irritation, become raised white bumps; then, as they progress, a small water blister in the center of the pimple and surrounding flesh is inflamed slightly. After one breaks the blister the place burns, then a scab forms, and each time the scab is removed the sore becomes larger and more irritating until the insect dies and nature causes the flesh to expel the injured particles and carcass. This last is not very scientifically put, but the best I can do. Neither is it a mistake as to their lasting two weeks at times. They frequently last three and four. If no remedy is applied, and scratching indulged, the sores can be made exceedingly painful and of long standing. Of course, town people seldom go out among weeds of any kind, and therefore do not come in contact with them. No one gets drowned if he stays away from water, nor burnt if he stays away from fire.

As to thinking Texas was like what Sheridan describes war, I emphatically deny any such meaning. If it were, a lady could hardly so pronounce it.

Abilene, Texas, March 11. M. E. PRUITT.

SPECIAL NOTICES

By OUR BUSINESS MANAGER.

BUCKWHEAT SEED.

Now is the time for sowing buckwheat. We are provided with a choice lot of seed, both Japanese and silverhull, which we can ship by first train from Medina. Price of either variety, \$1.25 per bushel; \$2.25 per bag of two bushels; 10 bushels, \$11.00, bags included to ship in. Send in your orders.

SWEET-CLOVER SEED.

We have already had a call for price on a carload of sweet-clover seed, and we should like to hear from those of our readers who are in position to furnish any seed, either hulled or unhulled, white. The time for sowing seed is at hand. The weather conditions were unfavorable last year, resulting in a short crop and high prices late in the season. Let us hear from those who will have seed to furnish.

SECOND-HAND CANS.

We still have a plentiful supply of those good second-hand 60-pound cans. While we do not as a rule recommend for choice white extracted honey any thing poorer than new cans, yet these are so good we use them ourselves for our best extracted honey. They are just as good as any for amber and off-grades. Price \$3.50 for 10 boxes; \$7.50 for 25 boxes; 100 boxes or more, 25 cts. per box; two cans to the box, and boxes put in good condition for re-shipment.

Kind Words from our Customers

Please find enclosed one dollar for renewal of my subscription to GLEANINGS, which expires July 1. I have been a reader of GLEANINGS for about ten years, and I have gotten more good out of single chapters of Uncle Amos' Home talks than all the subscription price I ever paid for GLEANINGS.

Lucasville, O., June 22. CASS. SCHOONOVER.

A KIND WORD FOR TERRY'S HEALTH BOOK.

Please renew my subscription to GLEANINGS and send me Terry's book on health. This will make the third book. I wish every beekeeper would buy at least one of these books. This is my second winter since I read the book, and I haven't had to take a drop of medicine since. I haven't even had a cold to speak of, although I have always been subject to colds, grip, and pneumonia in the winter. I am wintering my bees out of doors this winter, and they have come through very strong, but are short of honey and pollen. I am informed that bees are starving to death where neglected.

Warsaw, N. Y., March 26. W. W. SHERWIN.

POTATOES, 16 QUARTS TO THE HILL.

Your A B C potato book came in due time, and I read it through at once. It was very interesting to me, but Mr. Root's narrative about Bermuda Island is a tame affair compared to the climate, scenery, and productiveness of the soil here on Brewster Flats, Washington, U. S. A. I dug hill after hill of potatoes this year, 1912, each hill filling a 12-quart pail heaping full of good-sized potatoes. This was just a common thing; and the preparation of the soil and cultivation were almost nothing compared to what is done in Bermuda Island or what Mr. Terry did.

Mr. Terry's writings are so sensible, practical, and interesting on potato culture that I am enclosing the price, as I find it in GLEANINGS, for his book, "How to Keep Well and Live Long."

Brewster, Wash., Nov. 10. V. W. CLOUGH.

BEEKEEPERS AS A RULE SEEM TO BE "AN EXCEPTIONALLY CLEAN, KINDLY, AND UPRIGHT BUNCH OF MEN," ETC.

Returning to the subject of GLEANINGS, allow me to confirm what I hear from so many others, that the fraternity of beemen seems to be composed of an exceptionally clean, kindly, and upright bunch of men. Especially am I among that number who so frequently express themselves as indebted to A. I. Root. Nor is this expression merely complimentary or formal. I am at a loss for words to say just how Mr. Root's writings have helped me toward truly better things more than almost any thing I have read in years. If Mr. Root is like his writings, and I believe he must be, he really has religion, which, though it exists, is none too plentiful; and because it is close to the real thing it is "not puffed up," and does not "exalt itself unseemly."

Pellston, Mich.

J. D. ROBINSON.

FROM "KIVER TO KIVER."

I sent you one dollar for subscription on Feb. 13. May be this was over due; any way, here's another, as I find GLEANINGS interesting from "kiver to kiver." This is my second season, as I started last year with a three-frame nucleus and have now three colonies, and shall soon be able to write "Pitfalls of Beginners." As the old boatman said when some one asked if he knew the harbor rocks, "I'd order—been on every one." I am also going to tell you about "Katherine," my White Leghorn, with a record of two hundred and, and—well, frankly, I'm afraid to say, as a certain one might lay aside his prescribed teaspoon long enough to call me a favorite epithet. Her daughter's records were more believable, and her granddaughters are still "in the making."

The wind is getting around into the East, and I am hoping, as we need rain badly. As the negro parson said, "May it fall upon the just and the unjust; but, O Lord, let it fall heavier upon the latter. Yes, dear Lord, soak 'em!"

New Rochelle, N. Y., June 25. H. L. LOOMIS.

SPECIAL SALE!

Root's Goods Below Our Cost

Beekeepers will change their minds and use different kinds of supers all of a sudden. Our trade used, before section-supers, shipping cases, etc., while now nearly every beekeeper in our locality produces bulk comb honey, which, consequently, leaves us with a big stock of section supers on hand, which we are willing to sell very cheap just to dispose of them. They are all in the original packages, just as we received them from the factory, and there is absolutely nothing the matter with them, only we have hardly any more sale for them in our locality.

70 2 I-8.....	.37 each	60 2 P-8.....	.37 each
25 4 I-8.....	.50 each	100 4 I-10.....	.55 each
65 4 S-8.....	.50 each	80 2 I-10.....	.40 each
40 2 S-8.....	.37 each	35 4 S-10.....	.55 each
40 4 P-8.....	.50 each	75 2 S-10.....	.45 each

10,000 4 x 5 x $1\frac{3}{8}$ plain sections, 100 for .55; 300 for \$2.00; 1000 for \$3.70.

SHIPPING-CASES

	With glass, in lots of 10	100
150 24-lb. regular 4-row for $4\frac{1}{4}$ x $11\frac{1}{2}$ sections.....	\$1.30	\$12.50
150 12-lb. regular 3-row for $4\frac{1}{4}$ x $1\frac{7}{8}$ sections.....	.90	8.50
150 12-lb. regular 3-row for $4\frac{1}{4}$ x $11\frac{1}{2}$ sections.....	.85	8.00
100 24-lb. regular 4-row for 4 x 5 x $1\frac{3}{8}$ sections.....	1.20	11.50
150 12-lb. regular 3-row for 4 x 5 x $1\frac{3}{8}$ sections.....	.90	8.50

HONEY-CANS

As in previous seasons, we have prepared a very large and complete stock of honey-cans in our warehouse, ready for immediate shipment to you. Our honey-cans this season are the product of the largest independent can-manufacturing company in the United States, and are warranted to be the best grade possible to procure. Every can and case is fully guaranteed to give absolute satisfaction. The boxes are of the very best material that can be obtained for packing honey-cans, being strong and substantial, and securely nailed with cement-coated nails.

Prices quoted on application. Full line of Root's Beekeepers' Supplies always on hand.

Toepperwein & Mayfield Co.

San Antonio, Texas

PRINTYPE

Receives the Plaudits of the Public

Vigilant Protector of People's Eyesight Hailed as a Benefactor by Many Thousands of Enthusiastic Admirers. "Officer Printype" Responds with Becoming Modesty.

Officer Printype says: "I am overwhelmed by the ovation which has greeted my appearance in your midst. I am simply doing my sworn duty 'n ridding the Business and Financial Districts of the Bad Characters that for years have made Typewriters a menace to your eyesight. I have mercilessly exposed and relentlessly pursued these dangerous Typewriter Types, which are responsible for more cases of Defective Vision than all other causes combined.

"Report direct to my Headquarters, in the Oliver Typewriter Building, Chicago, any machine whose type is violating the Optical Law and I'll have the offender haled before the Court of Public Opinion."



Printype — **OLIVER** Typewriter

Printype is owned and controlled exclusively
by The Oliver Typewriter Company

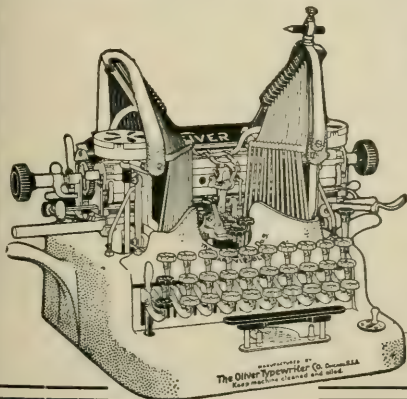
America rings with praise and applause for Printype. This superb new typewriter type has attracted more attention than any typewriter innovation brought out in recent years.

Hundreds of thousands of people have seen this new type and wondered what it was that made Printype Correspondence seem like a spoken message. There's virility, strength and charm in Printype correspondence. There's refinement and "class" and style.

Not because of its novelty—it's inherent in the type!

A Vast Improvement

Printype is designed in shaded letters and numerals, like the type in which books and magazines are printed. It is book type transformed and adapted to modern typewriter requirements.



This radical departure from the old style "outline" letters makes it possible to produce on The Oliver Typewriter a page of manuscript as clear and attractive as that of the finest book. The Oliver is the first and only typewriter that successfully prints print!

The Primary Reason

Printype resulted from our discovery that "outline" type, with its sameness, due to absence of shading, was harmful to the eyes.

The Silent Test

For months, without any advertising, we put hundreds of Printype Oliver Typewriters into actual service, in many diverse lines of business. We wanted the public's verdict. It came in a burst of admiration and a flood of orders that proved Printype a brilliant success.

Printype letters, wherever seen, excited the keenest interest. Business men who received their first Printype letter almost invariably answered post haste—"Where did you get that type?" Thus Printype captured the country without firing a single shot.

Price Not Advanced

The Printype Oliver Typewriter sells for \$100. You can pay at the rate of 17 cents a day. The "Printer" is our latest and best model. The new type adds 25 per cent to the value, but not one cent to the price. A small cash payment brings the machine. (248)

Send Printype Coupon Now!

The Oliver Typewriter Company,
116 Prospect St., Cleveland, Ohio.

Tell Officer "Printype" to write me a letter and send me his book. I am interested.

Name.....

Address.....

If you or any one in whom you are interested contemplate going to a Business College, write us first and we will, without charge, supply you with some very valuable information on the subject.

Manufactured by
The Oliver Typewriter Co. Des Moines
Iowa

ROOT'S BEEKEEPERS' SUPPLIES . . .

You may have a catalog of supplies; but if you haven't ours you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Extensive and prosperous beekeepers are writing us frequent letters like the following:

The A. I. Root Co.:—We have bought bees almost every season for a great many years, and in this way handled several styles of frames; but to date we have not found any thing that compares with your metal-spaced frame for an all-round fixture.

For the benefit of students we have experimented with other styles of metal spacers, and in every case imperfections were soon discovered. Your metal-spaced frame has many good points to recommend it, and we began using this style of frame the first season it was put on the market, and have more than 20,000 of them in use now.

For strength and rapid manipulation this frame has no equal. We use it alike in brood-chamber and extracting-supers, as with our plan of management a frame may be in the brood-chamber at one time and in the super at another, or the reverse may be true.

Janesville, Minn., March 8, 1912.

THE HOFMANN APIARIES, per E. L. Hofmann.

Our catalog also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in the line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

BRANCH OFFICES

New York, 139-141 Franklin St.	Chicago, 213-231 Institute Pl.
Philadelphia, 8-10 Vine St.	Des Moines, 565 W. 7th St.
St. Paul, 1024 Mississippi St.	Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W.	
Mechanic Falls, Maine	

Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory

MEDINA, OHIO





Gleanings in Bee Culture

VOL. XLI. AUG. 1, 1913, NO. 15.

Bees by the Pound

**Safe arrival guaranteed to any point
within five days from Medina, Ohio.**

We have finally perfected our pound packages so that we are now able to ship bees without combs to almost any point in the United States and nearby points in Canada without danger of transmitting bee disease of any sort. Half a pound of bees is nearly the equivalent of a two-frame nucleus; one pound, to three frames; two pounds, to six frames; three pounds, to an ordinary colony such as may be sent by express. The express on these pound packages is only about a quarter of the express on the equivalent value of bees when they are sent on combs. We shall be ready to ship bees in pound lots from Medina, with 600 colonies to draw from, by the first of June, at the following prices, without queens: Half-pound package, \$2.00; pound package, \$3.00; two-pound package, \$5.00; three-pound package, \$6.00.

Through July, and on throughout the season, the prices without queens will rule as follows: Half-pound package, \$1.00; pound package, \$1.50; two-pound package, \$2.50; three-pound package, \$3.00.

If you want queens with the pound packages, add the price of the queen selected to the price of the bees.

Express on half a pound of bees with queen, within 300 miles of Medina, will be approximately: One pound, 38 cts.; two pounds, 45 cts.; three pounds, 57 cts.

NOTE.—We can not ship bees by parcel post other than a queen-bee and a dozen or so attendants.

We have so perfected our cages for shipping bees in pound lots that we now feel for the first time that we can guarantee safe arrival at the prices named above, where bees are not on the road more than five days. As a general thing they will go through in good condition, even when out more than six days; but for the present, at least, we do not feel like assuming a greater limit than five days. Our guarantee means that, if bees fail to go through alive, or if they go through in bad order, we will either replace the shipment or send enough more bees to make up for the loss at our own expense, or refund the money. Orders will be filled in rotation after the first of June. Send in your orders now, and thus insure early delivery.

In addition we guarantee to give full measure of bees by weight. Half a pound will contain from 2200 to 2500 bees, and larger packages in proportion.

PRICES OF QUEENS.

Untested.....	July to October, \$1.00.
Select untested.....	July to October, 1.25.
Tested.....	July to October, 2.00.
Select tested.....	July to October, 3.00.

Untested Home-bred Queens in Quantity Lots in August and September.—During August and September we are prepared to name very low prices on large quantities for requeening. Prices depend on supply available, and quoted on application.

Send all orders to the home office of The A. I. Root Co., Medina, Ohio. Orders from the extreme South will be filled from Florida and Texas; those in the extreme West, from California.

N. B.—To get the price of a package of bees and a queen, add the price of the queen selected to the price of the package.

"falcon" Queens.....

Three-band and Golden Italians, Caucasians, and Carniolans

Untested, July 1 to October 1 . . . One, \$.75; six, \$4.25; twelve, \$8.00
 Select untested, July 1 to October 1, " 1.00 " 5.50 " 10.00
 Tested, \$1.50 each. Select tested, \$2.00 each.

All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are to be found on the reverse side of the cage cover. A full line of bee supplies and foundation manufactured by us at Falconer, N. Y. Write for samples of our foundation and Red Catalog, postpaid.

DEALERS EVERYWHERE.

Red Catalog, Postpaid.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. CO., FALCONER, N. Y.

Where the good bee-hives come from

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time" Send for Annual Catalog which will tell you who is your nearest Distributer.
 It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard G. B. Lewis Company, Watertown, Wis.

.. The ..

National Beekeepers' Association

Sell Their Members Friction-top Honey Pails and Cans at a Very Low Price, as Follows:

Approximate Capacity:	Per 100, in lots of 50	Per 100, in lots of 100	Per 1000 in lots of 1000
2-lb. Can.....	\$2.25	\$2.15	\$20.00
2½-lb. Can.....	2.75	2.60	24.00
3-lb. Can.....	3.00	2.85	28.00
5-lb. Pail.....	\$5.00	4.75	43.50
10-lb. Pail.....	7.00	6.50	60.00
12-lb. Pail.....	7.25	6.75	62.50

If not a member, send a dollar extra with your first order, which will pay your dues for a year, and we will send you *The Beekeepers' Review* for the last half of 1913, giving the first six articles of that sensational series of ten articles, "The Management of 3000 Colonies in 50 Yards," also the April and May numbers of *The Review* containing the report of the National meeting at Cincinnati. These two numbers alone contain 96 pages. A cordial invitation is extended to all beekeepers to join the National at this time. Address with remittance.

THE NATIONAL BEEKEEPERS' ASSOCIATION
NORTHSTAR, MICH.



Established 1885

We carry an up-to-date line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. . . . Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
 High Hill, Montgomery Co., Mo.



4 BUGGY WHEELS ^{TRUCKS PAID} \$8.75 ^{STEEL TIRES}

With Rubber Tires \$18.45. Your Wheels Re-rubbered, \$10.30. I make wheels 3 1/4 to 4 in. tread. Tons, \$6.50, Shafts, \$2.10; Repair Wheels, \$5.05; Axles \$2.25; Wag-on Umbrella free. Buy direct. Ask for Catalog 47
SPLIT HICKORY WHEEL CO., 547 F St., Cincinnati, Ohio.

HOW FAR CAN A BEE SEE?

That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think! The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. 10c a single copy.

Edward F. Bigelow, Editor,

The Agassiz Association, Inc.

ARCADIA:

Sound Beach, Connecticut

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well-filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—Fancy and No. 1 white comb, 16 to 17; fancy white, 11 to 12. Beeswax, 30.
Boston, July 17. **BLAKE-LEE CO.**

CINCINNATI.—There is very little doing in honey, either comb or extracted. No new honey has yet arrived. General conditions are good for a big crop.
Cincinnati, July 16. **C. H. W. WEBER & CO.**

KANSAS CITY.—The receipts of new comb honey are more liberal, and up to date we have had no trouble in selling upon arrival at \$3.50 per case of 24 sections for No. 1 white and \$3.00 to \$3.25 for amber. We quote white extracted at 8 to 8½. Beeswax brings 25 to 28.

C. C. CLEMONS PRODUCE CO.
Kansas City, Mo., July 15.

ALBANY.—We look for a high market on comb honey. Some of our shippers report a very short crop of clover. With all the old honey cleaned up, both comb and extracted, we can handle the new to good advantage. We have had a number of calls for new honey; but at present we know of no shipment on the way.

Albany, N. Y., July 16. **H. R. WRIGHT.**

INDIANAPOLIS.—A bounteous crop has been secured, but very little honey is moving at this date. Much honey is being offered by producers, but they do not name prices. I presume we shall have an established schedule of prices within the next two weeks. Beeswax is in good demand, and producers are being paid 30 cents cash or 32 in trade.

WALTER S. POWDER.
Indianapolis, Ind., July 16.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the stungum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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CHICAGO.—Receipts have been quite free for this season of the year, both in comb and extracted. The market is not active; but the quality of the honey is excellent. Prices are ranging for A No. 1 to fancy comb at 16 to 17; extracted, 9 to 10 for the clover and lindens. Amber grades and other white grades bring 7 to 8. Beeswax is steady at from 30 to 32, according to color and cleanliness.

R. A. BURNETT & Co.

Chicago, Ill., July 18.

DENVER.—Very little new comb honey is in sight in this State. We have received a few small lots which we are selling in a jobbing way at the following figures: No. 1 white, \$3.15 per case of 24 sections; choice, \$3.02; No. 2, \$2.88; white extracted honey, 9; light amber, 8; strained, 6½ to 7. We pay 26 cts. in cash and 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Denver, Col., July 19.

CINCINNATI.—Many shipments of both comb and extracted honey are coming in from all directions, and it is the early shipper who will get the best prices this year. Fancy extracted honey is selling in this market at 8 to 9 in 60-lb. cans, and fancy and No. 1 comb honey at 13 to 15, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 30 cts. delivered here.

THE FRED W. MUTH CO.

Cincinnati, Ohio, July 19.

ZANESVILLE.—While reports reaching us from outside points are rather meager as yet, an old-time honey-flow is still in progress locally, and considerably more than the average amount of honey is being offered by producers hereabout. As there are few really large producers in this immediate vicinity, but little honey finds its way into the hands of large dealers, most of it being taken up by consumers direct or by retail grocers. There seems to be considerable demand of this sort. Indications are for a decline when outside honey comes in on the market. Offerings of extracted are rather in excess of the demand, this being distinctively a comb-honey market. Producers receive for beeswax 30 and 32 in cash and trade respectively.

Zanesville, Ohio, July 19. EDMUND W. PEIRCE.

ST. LOUIS.—The receipts of comb and extracted honey are moderate for the season. There is no demand for comb honey, on account of the prevailing hot weather; but for extracted honey there is a good demand. The quotations for comb honey are nominal. We quote fancy white comb honey at 16 to 17 cts. No. 2 white at 15; light amber, 13 to 14. By the case, fancy white comb honey brings \$3.65 to \$3.75; No. 2 white, \$3.25 to \$3.40; amber, \$2.75 to \$3.10, according to quality. Dark or broken honey is unsalable. Extracted honey, Southern, in barrels and half-barrels, is quotable at 6½ to 6¾; in five-gallon cans, 6¾ to 7. Dark honey sells for less. There is no California, Utah, nor Colorado honey in this market at present. Beeswax is in good demand at 32 cents for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO.

St. Louis, July 17.

NEW YORK.—There is no new nearby comb honey on the market as yet. Some few shipments have been and are arriving from the South, and are selling at from 13 to 16, according to quality and style of package. Of course, it is rather early as yet for us to expect to have new-crop comb honey from New York State and near by, and it may be a month from now before we receive the first shipments. In fact, the season is not over as yet; and from reports we are daily receiving, basswood seems to be now blooming, and promises a fair crop. There is a fair demand for extracted honey, principally new crop from the South, common grades selling at from 65 to 70; choicer grades at from 75 to 85, and sometimes 90 cts. per gallon. Old-crop California is well cleaned up, and we do not expect new crop from there until next month. Beeswax is steady at 31 to 32.

New York, July 17. HILDBRETH & SEGELKEN.

An Evidence of Good Service

The fact that the Savings Deposit Bank renders good service is best evidenced by the fact that it serves people in all parts of Medina county and all over the country. People living at a distance appreciate the careful manner in which we handle their banking business, and they forward their deposits to us by mail, checks, drafts, money orders, or registered letters.

CHECKING ACCOUNTS, •
either large or small, invited.

SAVINGS ACCOUNTS
may be opened with \$1.00,
or upwards.

The SAVINGS DEPOSIT BANK COMPANY

Medina, Ohio

The Bank that pays 4 per cent

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CULTURE, PUBLISHED SEMI-MONTHLY AT
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(Signed) THE A. I. Root Co.
Sworn to and subscribed before me this 17th day of July, 1913.

[SEAL.]

(My commission expires Feb. 23, 1914.)

(Signed) FRANK SPELLMAN.

Convention Notices

The summer meeting of the Pennsylvania State Beekeepers' Association will be held in Geo. M. Steele's yard, West Chester, Pa., Sept. 6. The day will be spent largely in practical demonstrations interesting to all beekeepers. Everybody invited. Get ready for a big day. Program later.

Liverpool, Pa., July 18. H. C. KLINGER, Sec.

LEWIS HIVES ARE BUILT LIKE FURNITURE
ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell
you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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Twenty-five cents per agate line, flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

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Cash discount if paid in ten days, 2 per cent.

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RUSH ORDERS

BY MAIL.—Has your "forgettery" been working? And right this minute you need foundation or other items. See page 1 of our catalog, and it gives parcel-post rates on various articles.

BY EXPRESS.—Larger shipments than can go by mail we can rush out at once. Parcel-post and express orders receive our first attention.

BY FREIGHT.—Our rule is "ship same day the order is received," and we break it only when absolutely necessary. Notice that Lansing is the railroad center of Michigan from which freight shipments can be delivered quickest.

And we fill all orders with Root's goods. Just remember that too. Send for catalog. Beeswax wanted.

M. H. HUNT & SON, LANSING, MICH.

OPPOSITE LAKE SHORE DEPOT.

BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and now packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street



Am now shipping Untested Queens from My

Celebrated Pedigreed Strain

My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLEY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States.

Never had foul brood.

Swarthmore Apiaries,
Swarthmore, Pa.

IF YOU USE

bee supplies you should have our catalog.

We sell the best grade of No. 25 made.

Heavy cartons that protect honey.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, \$1.00; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c.

E. E. MOTT, Glenwood, Mich.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

Root's Shipping Cases for Honey

We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. NEW 60-POUND CANS, two in a case, a specialty. FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.
"Griggs is always on the job."



**"If Goods are wanted Quick,
send to Pouder."**

Bee Supplies!

When you are in urgent need of bee supplies you will likely consider two details—quality and promptness. For about a quarter of a century I have handled the Root quality of goods, shipping from Indianapolis at the factory schedule of prices. I believe it is generally admitted that as to material, workmanship, and accuracy, their equal is not to be had elsewhere. An immense stock on hand at all times, and no old or inferior goods offered at any price. Nearly every order is filled within a few hours after arrival, and you will agree with me that this feature is the finest advertising that I have ever been able to place on my house. We have so many railroads and express companies at our command that shipping promptly from here is not a hardship. The parcel post is a boon to all of us, and these packages are taken up by Uncle Sam three times a day.

Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and I should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.
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A customer writes, "You must have sent my last order by airship, it got here with such lightning speed."

Handicapped by a flood loss that necessitated an entirely new stock just at a time when the Root factory was crowded with orders, it has taxed my resources to the utmost to maintain my reputation for promptness in the delivery of supplies. The most active season for a number of years has made the task doubly difficult. Possibly a few customers may have been inconvenienced at the outset. I am glad to say, however, that my stock is now practically complete, and new goods are arriving right along. With the better facilities of my new location, and additional help for the remainder of the rush season, I feel that all customers, old and new, will be served here with as little delay and as great satisfaction as would be possible anywhere.

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A half million sections on hand, and a ton or more foundation ready for instant shipment.

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The VERY BEST ITALIAN QUEENS can now be had by return mail at LOWEST PRICES.

Situated in the BUCKWHEAT belt, in August ideal conditions exist under which to rear the best of queens at low cost. Using the best domestic and imported breeders selected for hardiness, prolificness, producing good workers, gentle, and disease resistant; well-fed queen-cells grown in populous two-story queenright colonies; when ripe, placed in three frame nuclei, where young queen hatches, mates, and stays until sold. No better queens can be produced.

Queens that have Made Good.

From Maine to California, from Canada to the Gulf, hundreds of our Queens have gone, and given satisfaction to those who received them. "Blood will tell." See page 10, July 1, GLEANINGS. One of these vigorous young queens at the head of every colony insures against winter loss, spring dwindling, poor seasons, or failure. Pure mating, safe arrival, and satisfaction guaranteed.

PRICES.—Select Italians only, untested, 75c; six for \$4.00; 25 for \$15.00. Tested, \$1.00.

Six extra select tested, year old, for breeders, \$3.00 each.

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Dear Sirs:—In reply to your favor I take this opportunity to let you know that I am a customer of yours. I used considerable of your Surplus foundation some time ago, but got side-tracked. I would have saved money by using your foundation.

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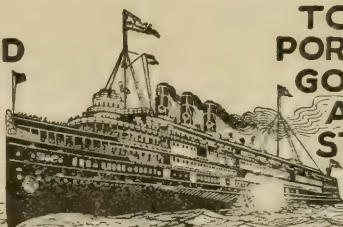
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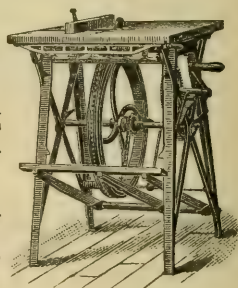
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The only cyclopedia on bees, 750 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$2.00 postpaid; money refunded if unsatisfactory.

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W. H. LAWS

is again ready to fill your orders for queens the present season. Law's Red-clover Italians are as good as can be had.

One firm who bought over 1100 queens from me in 1912 says, "Your queens are very satisfactory." We are booking orders now, and we are going to do our level best to mail all queens by return mail when so ordered. My bees are absolutely clean and free from all disease.

Queens sent out under the usual guarantees. Prices: Single queen, \$1; six for \$5. Breeding queens, none better, each, \$5.

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Famous Italian Queens!

from the Apiaries of
WALLIN & CORLIS

have won a world-wide reputation for prolificness, hardiness, gentleness, and honey-gathering. Our queens are reared scientifically from breeders perfected by years of elimination. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating.

Satisfaction and safe arrival guaranteed.

Circular free.

Untested, 75 cts.; dozen, \$8.00.

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Miller's Strain of Red-clover ITALIAN QUEENS

By Return Mail or order returned

Bred from superior breeders for business; gentle; no better hustlers; bees roll honey in; three-banded; Northern-bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored strains. Untested, 75 cts.; six, \$4.00; dozen, \$7.50. Select untested, \$1.00; six, \$5.00; dozen, \$9.00. Satisfaction guaranteed.

Isaac F. Miller, a queen specialist and breeder for sixteen years, previously of Brookville, Rt. 2, Reynoldsville, and lately of Oil City, Rt. 2, Pa., is agent and breeder for E. L. Miller. Send all orders to

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Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50. Try me for rush order.

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LINE-BRED CARNIOLAN Queens!

Carniolans are good winterers - prolific, gentle, enter supers readily, and excellent honey-gatherers. Untested, \$1.00; dozen, \$9.00. Tested, \$1.50.

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A cross between the Italian and Carniolan. Most excellent honey-gatherers, but not so gentle as Carniolans. While they last, 90 cts. each; dozen, \$8.00.

Bees by the pound through August. Ask for prices.

ALBERT G. HANN, PITTSSTOWN, NEW JERSEY
Carniolan Queen Breeder

QUEENS AND BEES

An improved superior strain of Italians is what QUIRIN RAISES. Our stock is Northern bred and hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis., and July 20th (of same year) he wrote us saying they did just splendid, as at that date they had already filled their supers, and that he would have to extract them. We have files of similar testimonials.

Prices for rest of season	1	6	12
Select queens	\$ 75	\$ 4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
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Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuclei, no queen	3 25	18 00	32 00
Full colonies on 8 frames	5 00	25 00	
One pound bees, no queen	1 50	8 00	
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Add price of queen wanted with bees. Bees by the pound, nuclei, and colonies: if wanted before June 1, add 25 per cent. QUEENS NOW READY. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

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Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

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J. P. MOORE,

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Route 1, Morgan, Ky.



FAMOUS QUEENS direct from ITALY!

Bees more beautiful, more gentle, more industrious; the best honey-gatherers. Universal Exposition, St. Louis, Mo., 1904, the highest award. Extra breeding queen, \$3.00; selected, \$2.00; fertilized, \$1.50. Write

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Please in writing mention GLEANINGS.

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Untested, 75c; tested, \$1.00 each.

For lots of 50 or more write me.

Prompt delivery and satisfaction to everybody.

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Recent demand for comb foundation
has been good, and our stock of bees-
wax is running low. We offer for good
average quality and prompt shipment
30 cts. per lb. cash, or 32 in trade, de-
livered at Medina. Shipments from
the Pacific coast should be in barrels
or boxes. From other Western points,
pack in double bags to get the most
favorable rate. Be sure to mark the
shipment so it can be identified when
it arrives, and send us a shipping re-
ceipt with a statement of gross, tare,
and net weight shipped. This is im-
portant as it gives us something to
check so as to determine whether any
has been lost in transit.

The A. I. Root Company
Medina, Ohio

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Our new catalog is full of information about these labor-saving
machines. With the difficulty of getting competent help, the
power extractors are being sold largely in this and foreign
countries, and the present demand is far greater than ever be-
fore. Read what a California producer says in a letter to a
disinterested party, which we are permitted to see and publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root
Automatic extractor, as I believe it is as near perfection as can be. This machine runs
so easy that a few turns to get it up to speed is all that is necessary; and the men,
while using the No. 17, which I formerly had, could average only 1000 lbs. per day,
while with this machine they can average 2000 lbs. with but one additional man. No
apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such
a satisfaction, and financially to the honey-producers' interests.

Elk Grove, Cal.

B. B. HOGABOOM.

For full particulars see our new catalog

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New York, 139-141 Franklin St. Chicago, 213-231 Institute Place Philadelphia, 8-10 Vine St.
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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

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Bronzed Honey Labels, 500 for 80 cts.; 1000 for \$1.10. PEARL CARD CO., Clintonville, Pa.

FOR SALE.—White-clover honey of the finest quality in 60-lb. tins. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—Finest quality clover and clover-basswood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

WANTED.—Extracted clover honey in 60-lb. cans. Mail good-sized sample and best prices. ALBERT G. HANN, Pittstown, N. J.

No. 1 white comb honey, \$3.50 per case; No. 2, \$3.00; 24 sections to case; six cases to carrier. Clover extracted, two sixty-pound cans to case, 9 cts. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Fine ripe clover and basswood honey mixed. A fine blend in 60-lb. square cans, two cans to case. Price 9 cts. per lb.; sample, 5 cts. C. A. BUNCH, Lakeville, St. Joseph Co., Ind.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Fancy extracted white-clover honey in barrels, 60-lb. tin cans, or in tin pails. Write your wants and get prices. Sample 5 cts. Honey is well ripened and thick, none better on the market. EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

WANTED.—Honey in car lots. If you have or expect to have a car of honey, or if a car can be had in your vicinity, write to us and state your prices, delivered on car at your station. OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—Extra-fine extracted clover honey. Have had no better in 25 years. Tiered up and well ripened before extracted. It is in new 60-lb. (net) square cans, two in a box. Price on request. DR. C. G. LUFT & SON, Fremont, Ohio.

8000 lbs. new crop of hulled yellow sweet-clover seed (biennial); 10 lbs. by mail, prepaid, \$3.10; 50 to 100 lbs., 20 cts. per lb.; also 100 lbs. hulled white, \$28.00; alfalfa seed, 15 cts. per lb. R. L. SNODGRASS, Augusta, Kan.

RASPBERRY HONEY for sale. This honey was left with the bees until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. It is put up in new 60-lb. tin cans. The price is \$6.00 a can. Sample by mail, 10 cts. The 10 cts. may be applied on an order for honey.

ELMER HUTCHINSON, Pioneer, Mich.

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WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 173 So. Water St., Chicago.

WANTED.—Comb and extracted honey in quantity. Clover and raspberry preferred. I. J. STRINGHAM, 105 Park Place, New York.

We will pay the highest cash price for thoroughly ripened extracted honey. Write us, stating quality and quantity, with prices F. O. B. your station.

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WANTED.—To sell one, two, and three frame nuclei with untested queens, cheap. WM. ATCHLEY, Beeville, Texas.

WANTED.—To exchange a new automatic fruit-dryer, capacity 12 bushels per day, for small gasoline-engine.

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Owing to ill health I will sell my interest in the Rocky Mountain Bee Co., amounting to nearly one-fourth, at a great bargain; or would trade for satisfactory property in lower altitude. This is a profitable investment for a good beekeeper.

W. HICKOX, Forsyth, Mont.

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Virginia apple land will make you independent. \$15.00 per acre and up. Easy payments. Buys No. 1 fruit and farming land. Write at once for our illustrated booklet, and low excursion rates. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., Room 73, Roanoke, Va.

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A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. THOS. LITZ, Osceola Mills, Pa.

Beekeepers. let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

FOR SALE.—26 ten and 18 eight-frame two-story painted hives, factory made. Lot, \$40.00. A. IRISH, Lawton Station, N. Y.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—75 bright clean second-hand 60-lb. honey-cans and cases, two to the case, at 25 cts. each, or \$16.50 for the whole lot to one party. ALBERT G. HANN, Pittstown, N. J.

BEES AND QUEENS

Red-clover Italian queens, untested, 75 cts.; test ed, \$1.25; breeders, \$5.00. J. H. GIBBS, Berlin, Md.

Golden Italian queens, \$1.00 each; six for \$5.00. Warranted. J. B. CASE, Port Orange, Fla.

Pure Italian bees for their hybrids, in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

FOR SALE.—Untested queens that produce; 75 cts.; tested, \$1.00; hybrids, 30 cts. S. H. RICKARD, 506 Machesney Bldg., Pittsburg, Pa.

Famous North Carolina bred Italian queens for sale. As good as the best; beautiful, prolific, fine hustlers for honey. No foul brood. All cells are reared in full two-story hives running over with bees at all times. That gives a queen that is a wonder. See my advertisement in GLEANINGS, June 1 and 15, 1913. Red clovers a specialty. My Goldenes are good. Each grade, untested, 75 cts.; \$7.00 per dozen. Select untested, one 90 cts.; \$8 per dozen. Tested, \$1.25; select tested, \$1.50; extra select tested, \$2.00; breeders, \$3.00 and \$5.00.

H. B. MURRAY, Liberty, N. C.

Golden Italian queens, untested, \$1.20, after June 15.
E. H. BUCKMAN, Chester, Pa.

FOR SALE.—Untested golden Italian queens, 50 cts. each.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Full eight-frame colonies of Golden Italian bees, young queen, \$6.00 with super.
HILLCREST FARM, Winchester, Ind.

FOR SALE.—Italian queens, untested, 75 cts.; 6 for \$4.00; 12, \$7.00. I can fill orders promptly.
E. A. SIMMONS, Greenville, Ala.

Fine Italian queens, three-banded, prolific, hardy, gentle. Untested, 75 cts. each; 6 for \$4.25; dozen, \$8.00.
J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

FOR SALE.—Golden Italian queens, tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Queens by return mail, untested, \$1.00 each; six, \$5.00; \$9.00 per dozen. Italians and Carniolans.
WM. ATCHLEY, Beeville, Bee Co., Texas.

FOR SALE.—Italian queens from best strain. Pure mating guaranteed. Untested, 50 cts. each.
D. E. MEYER, Lowell, Ark.

FOR SALE.—Guaranteed queens, of three-band red-clover stock. One, 60 cts.; six, \$3.50.
J. I. BANKS, Rt. 3, Liberty, Tenn.

Hardy northern-reared queens of Moore's strain of Italians, ready June 15. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. P. B. RAMER, Harmony, Minn.

I will sell untested Italian queens at 60 cts. each, \$5.00 per dozen; no disease. Safe arrival guaranteed.
EDWARD O. MESERVE, Ventura, Cal.

Goldens that are golden, pure Italian queens \$1.00 up. Send for booklet, but do not send rush orders.
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Virginia three-banded Italian queens, untested, 65 cts.; tested, 85 cts. All dead queens replaced free. Ready May 15.
S. CLICK, Box 16, Rt. 2, Mt. Jackson, Va.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address
DEROY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—Full colonies of Italian bees with young queen, \$6.00; nuclei, \$1.25 per frame; queen extra. Write for prices on queens.
ARVIN, NUSBAUM CO., Meldrim, Ga.

Fine Italian queens, reared by best-known methods of a \$10 Doolittle breeder and select imported stock. Untested, 75 cts. each; 6 for \$4.00, by return mail.
J. B. HOLLOPETER, Peniz, Pa.

Carniolan Queens.—Price for rest of season: Untested, one, 75 cts.; six, \$4.25; twelve, \$8.00; tested, one, \$1.00; six, \$5.50; twelve, \$10.00. Address
WM. KERNAN, Rt. 2, Dushore, Pa.

FOR SALE.—New England Italian queens; untested, 75 cts.; tested, \$1.00. Breeder, one year old, \$3.00 to \$5.00; 27 years' experience; foul brood unknown.
E. S. WATSON, Rt. 2, Madison, Maine.

FOR SALE.—After June 20, fine Golden Italian queens, 75 cts. each; 6 for \$4.00; few choice breeders at \$3.00 each. Cash with order. Good honey-gatherers. EDWARD REDDOUT, box 43, Lysander, N. Y.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.
C. W. PHELPS & SON,
3 Wilcox St., Hampton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Virginia.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Barnett's, Va.

Fine-bred golden Italian queens of stock that has 84 lbs. (3 crates) of white, alsike, and red clover by July 1. Will make that much yet of goldenrod and buckwheat. Untested, \$1.00.
WILL H. CARL, Elysburg, Pa.

Goldens and three-band Italian queens from the Golden State. Queens by return mail. No disease. 1, 75 cts.; 6 for \$4.00; \$8.00 for 12. Special prices in large quantities.
LEMUEL J. DUNN,
14 Garfield Ave., Rt. 6, San Jose, Cal.

Special Notice.—Now is the time to requen your bees. We have some very choice red-clover Italian queens that we will send by return mail. Tested, \$1.00; 6, \$5.00; untested, 75 cts. each; 6, \$4.00. We will guarantee every queen to give satisfaction.
FRED LEININGER & SON, Delphos, Ohio.

Walker's strain of red-clover three-banded Italians, \$66.00 per 100, delivered in lots of 25 to 100 any time from Aug. 1 till Nov. 15. Please send in your orders early, and say just when you want them delivered.
CURD WALKER, Queen-breeder,
Rt. 1, Box 18, Jellico, Tenn.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

The two B's of quality. Italian bees and Sicilian Buttercups. For all that is best, unexcelled. Untested queens, \$1.00 each, six for \$5.00. Buttercup eggs from prize-winning pen, 15 for \$4.00; "A" pen, 15 for \$2.50; 30 for \$4.00.
H. WILLIAM SCOTT, Barre, Vt.

FOR SALE.—18 colonies of bees in ten-frame L. and Danz. hives at \$5.00 per colony. Single colonies at \$5.50. No disease. The bees are leather-colored Italians, best strains obtainable. Also ten-frame Danz. supers and shallow-frame extracting-supers for sale cheap.
R. A. LUTZE, 133 S. Broad St., Trenton, N. J.

Queens by return mail. Three-banded untested Italian queens, 60 cts. for 1; \$6.60 for 12, and \$50 for 100. Good as can be had at any price. No disease. Satisfaction guaranteed. If any untested queen I have sent out has proved to be impurely mated, I am willing to replace her free.
W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—Guaranteed purely mated three-banded Italian queens. I recommend four points—gentle, prolific, extra good honey-makers, good winterers. J. E. Hand strain. State inspector's certificate. Queens by return mail or your money back. Select untested, one, 80 cts.; 6, \$4; 12, \$8; 25, \$15.
J. M. GINGERICH, Rt. 3, Arthur, Ill.

Italian queens. Gentle three-banded stock, bred for honey-gathering ability. Good red-clover workers and good winterers. Prompt service, fair prices, and no disease. Untested queens, 75 cts. each; 6 for \$4.25; 12 for \$8.00; 50 for \$32.00. Safe arrival in the U. S. or Canada, and guaranteed to please.
H. C. SHORT, Winchester, Ohio.

Queens from Georgia apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested, \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb, packed any size to suit customer. Prices and samples sent free.
JOHN W. CASH, Bogart, Ga.

Three-banded Italian queens and bees. Untested queens, 75 cts. each; six, \$4.25; twelve, \$8.00; tested, \$1.25 each; six, \$7.00; twelve, \$12.00. For select queens, add 25 cts. each to the above prices. Nuclei without queens, one-frame \$1.50; two-frame, \$2.50; three-frame, \$3.00; 1 lb. bees, \$1.50; ½ lb. bees, \$1.00. Add price of queen wanted with bees.
ROBT B. SPICER, Wharton, N. J.

Bees and Queens.—At the close of our queen-rearing season in August and September we will unite several hundred nuclei. We offer the going queens removed from these nuclei as follows: Untested, 50 cts. each; \$5.50 per dozen; tested, 75 cts. each; \$8.00 per dozen. These queens are all bred from best Doolittle and Moore stock. Delivery guaranteed. **SPENCER APRIARIES Co., Nordhoff, Cal.**

Choice Italian Queens.—The product of years of careful selecting; gentle, hardy, white cappers. One yard this season didn't cast a swarm. Every colony wintered in 1912-13; wintered on summer stands, and in cellar; about 50 nuclei. Untested, 75 cts.; select untested, \$1.00; tested, \$1.25; select tested, \$1.50. Breeder, \$5.00 up. Try one and be convinced. No disease. A square deal guaranteed. I am willing to return money if unable to fill orders, if requested to do so.

A. J. SEAVEY, Rt. 2, Farmington, Maine.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. **JEWELL'S FERRET KENNELS, Spencer, O.**

FOR SALE.—Bulldog—a good watchdog.
F. E. NICHOLS, Medina, Ohio.

Golden Seal.—Cuttings, plants, and seed-bearing roots for sale. Ask for prices.
J. A. HONABARGER, Warsaw, Ohio.

POULTRY

SINGLE-COMB WHITE LEGHORNS.—\$1.00 each; pullets and cockerels, yearlings and cocks; shipped anywhere. As many as desired. Write for catalog.
WOODWORTH FARM, Wilton, Conn.

HELP WANTED

WANTED.—Assistant in apiaries. Preferably handy with machinery. State age, experience and wages, first letter.
F. B. CAVANAGH, Hebron, Ind.

BEEKEEPERS' DIRECTORY

If you need queens by return mail, send to
J. W. K. SHAW & Co., Loraumville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

By OUR BUSINESS MANAGER.

SWEET-CLOVER SEED.

We want to hear from those who are saving white-sweet-clover seed, and will have some seed to sell. Let us know about how much you can furnish, and what you ask for it.

A FREE BOOKLET ON BEES.

Those who are starting little apiaries will be interested in our little book, "How to Build up an Apiary with One Pound of Bees." This will be sent free of charge to anybody applying for the same. Even if you do not buy any bees it will be worth while to read it.

HIGH-GRADE QUEENS AT REDUCED PRICES.

We are catching up on orders, and if some of our customers will allow us the option of mailing when we have a surplus of queens we will make a very low price on queens in quantities; dozen, fifty and hundred lots. This stock is the very best we raise, from our choicest breeders, and all home bred.

SECOND-HAND 60-LB. CANS.

If in need of good cans cheap, do not forget that we have a good stock of extra choice second-hand cans, two in a case, which we are selling at \$3.50 for 10 cases; \$7.50 for 25 cases; 100 or over at 25 cts. per case. If you do not find them free from rust on the inside we will replace any so found. They are excellent value for the money.

BARGAINS IN COMB-HONEY SHIPPING CASES.

We have a number of shipping cases of pattern which we no longer make, which we can ship promptly at special-bargain prices to close them out. We have the largest number of two-row cases for 12 and 16 sections. If interested, send for special list. We also have a lot of used cases nailed up in good condition, which would be a bargain to some one. Let us know if interested, and what size of section you want to case.

SPECIAL BARGAIN IN 10-LB. FRICTION-TOP PAILS.

Through misunderstanding an order, we have to dispose of at Fayetteville, Ark., a supply of 10-pound friction-top pails, six in a case. We sell these regularly from Chicago, at 65 cts. a case. We offer them f. o. b. Fayetteville, Ark., at the same rate, ten cases for \$6.25, or twenty-five cases for fifteen dollars. This will be an advantageous price for those located in the Southwest who can use them, as the freight from Fayetteville should be less than from Chicago. They are offered as above, subject to previous sale.

ONE-POUND ROUND JAR.

Among the honey-jars listed in our catalog there is none more handsome than the one-pound round shown above. It is also the cheapest one in the whole list. We supply them in corrugated-paper reshipping cases of two dozen each, at 80 cts. per case; 6 cases for \$4.50. They weigh 18 lbs. per case, and ship safely in these paper cases. We have a pretty good stock of these here and at our branch stores.

SIMPLEX JAR.

This jar, which we have handled for years, will not be supplied after our present stock is exhausted. The factory which made them has discontinued them and closed out its stock. We still have several hundred cases which we shall be pleased to furnish, as long as they last, at \$1.10 per case of two dozen, \$6.30 for six cases.



SPECIAL NOTICES

A. I. ROOT

DASHEEN HIGHER THAN A MAN'S HEAD 90 DAYS AFTER PLANTING.

When I got the five bushels of dasheen seed, already mentioned, I sold a peck to each of four neighbors, right and left; and I told each one of these four neighbors to see who could make the best report. Well, one of those neighbors, Mr. Ault (a beekeeper), has dasheen already higher than his head—at least so Mrs. Ault writes Mrs. Root. Now if these were planted the first week in April (and it certainly was not earlier than that), and were higher than his head the first week in July, that makes a pretty good record for 90 days, and the seed was not first-class either, as I have already explained. It did not compare in soundness and firmness with what I received from the Department of Agriculture. I have not heard from the rest of the neighbors who had a peck apiece.

MAKING THE FARM PAY.

The above is the title of a very pretty cloth-bound new book of 300 pages. It is a brief *resume* of almost all lines of general farming, even including bees and poultry. There may be an objection raised because the book tells of the possibilities of growing various crops as well as bees and poultry; but as a general rule I think their statements present a pretty fair showing of what may be done by a live man or woman. It was written by Mr. C. C. Bowsfield, and is published by Forbes & Co., Chicago. The price is \$1.00. The publishers make the brief statement, "This book is published in the hope of assisting farmers to improve their position." It may be worth many times the price to any one who will study it carefully and thoroughly.

Below is the statement which I confess is a surprise to me. I am sorry the author did not tell just where he secured such a yield of honey from buckwheat. I copy as follows:

"I have a yard of bees which worked in a field of buckwheat containing about 10 acres. No other buckwheat was within reach of them. They brought in over \$200 worth of buckwheat honey from this small field. This is an average of over \$20 per acre. The flow of basswood honey, secured almost entirely from the yield on an adjoining farm, netted several hundred dollars. These yields may surprise many, but they are not excessive. I have, during an exceptional year, secured a yield treble the above from buckwheat, and have harvested a crop of \$480 worth of honey from a basswood grove of less than 10 acres. Honey represents one of the largest crops, and nine-tenths of it is allowed to go to waste. It might be harvested at less expense than any other crop produced. The reason why farmers have not kept abreast of the times in beekeeping is hard to find."

POTATO-GROWING IN FLORIDA; OVER A QUARTER OF A MILLION BUSHELS SHIPPED FROM ONE STATION.

Friend Root:—After reading your potato article (p. 277, April 15), I wanted you to know what they do at Hastings in the way of growing potatoes, so I took the matter up with Assistant General Freight Agent J. F. Mead, whose reply is attached. Hastings is the potato center; but there are many other towns that grow large quantities. So you see Florida grows some Irish potatoes. By the way, we furnish lots of seed for Hastings growers, and a Hastings man goes north each summer and grows our seed.

Our rains have started, and every thing looks refreshed after our dry season.

Bradentown, Fla., June 27. S. C. CORWIN.

My dear Mr. Corwin:—Your letter of June 19 regarding movement of potatoes from Hastings, Florida, is at hand. I beg to advise that the season began this year April 10, and closed May 25; and, according to our figures, they moved 106,590 barrels (266,475 bushels) from Hastings proper, loading 166 barrels (10 pecks to the barrel) to the car.

I am very glad to know that you have done such a handsome business over your dock this season, and hope for your continued success. I have been trying

to make a trip on the Manatee River for some time, with the view of calling upon you and renewing our old friendship; but they have kept me so busy this winter I have been unable to make this trip. I contemplate doing so this summer, however, and hope to have the pleasure of having a good long chat with you.

JAMES F. MEAD, Asst. Gen. Freight Agent.
Jacksonville, Fla., June 24.

EGGS AND JERSEY MILK IN FLORIDA.

We see in the last GLEANINGS what you say about your Florida neighbor's Jersey cow's milk. You no doubt will remember us. Yourself and your son Huber stayed with us at Pittsford, Mich., over Sunday when you were on your first trip to Northern Michigan with your automobile. No doubt you will still remember the mammoth clover and the little mule. Well, we came to Florida five years ago, and we find that the cows here do give much richer milk, but not such a big flow. We are sure of the richness, for we tested the milk both in Michigan and in the South. We make lots of butter, for which we get 40 cts. the year round. In the first six months of 1913 we sold over 1000 dozen eggs, not any less than 20 cts., and up to 40 cts. a dozen. Mr. Root, if you think of it, get some of the L. & N. literature about West Florida, and you can then get some idea of the work we have done since we came to Florida. The L. & N. will have them ready by fall. Any thing you write about Florida is interesting to us, for we have come to stay.

Pensacola, Fla., July 14. O. W. JEFFERSON.

WOMEN DOCTORS FOR WOMEN.

Dear Mr. Root:—In Our Homes on p. 671, Oct. 15, 1912, you mention a doctor who always insists on young female patients being accompanied by a chaperon. Don't you think the trouble could be overcome by having lady doctors? I have always been an advocate of this reform, and it is coming; but you could give the movement a boost if you thought as I do. Is not the examination of a young girl by a man a shock to her, and does it not tend to destroy that jewel in a woman's diadem—her modesty? There would be hardly any male practitioners attending women if it were not for their efforts to prevent the lady doctors getting into the ranks. In the name of common decency, is it not time the fathers of the land take a hand in the movement?

MAJOR SHALLARD.

Woodburn, N. S. Wales, Australia.

My good friend, I have often said the same thing in substance to Mrs. Root; and since woman suffrage has gained ground so rapidly, I think we shall very soon have more women doctors than we have already. Let a man and his wife both study medicine. Let the men take charge of the men and boys, and the good wife attend, so far as she can, to the women, and especially the girls. Of course the husband would, perhaps, be frequently called into counsel, and *vice versa*; but during my brief life I have again and again run across the evil resulting from letting a girl go unattended by her mother or sister to a doctor's office. As I suggested before, let the woman treat women, and especially young girls without their mothers, or doctor's wife or some other relative being present. I have just seen mention that the great city of Chicago has

policewomen as well as policemen on the police force, and their business is especially to deal with women who are criminals. May God hasten the day when good motherly women shall be expected to fill various offices which just now only men are deemed competent to hold.

THE KINGDOM COMING.

In the opening paragraph of *Our Homes* for July 15 I reiterated what I have said several times before, that some great world-wide event is just before us. I do not know just how nor in just what way; but God is hearing the prayers of his people, just as he heard their groanings in the land of Egypt in olden times. It looks to me just now as if the coming Moses might be in the form of woman; for where in all this world of ours can we find more of the Christlike spirit than there is in the mothers of our land—the mothers who have long been praying for the safety and welfare of their boys and girls? Read the following, which I clip from the *Plain Dealer*:

WOMEN INVADE IN AUTOS; SUFFRAGISTS, IN HUNDREDS OF MOTORS, TO STORM SENATE.

WASHINGTON, July 21.—Scores of suffragist-laden automobiles are hastening toward Washington bearing petitions to Congress for a constitutional amendment granting universal suffrage; and by the end of this week, leaders of the National Woman Suffrage Association said to-day, these automobiles would be numbered by the hundreds. The Senate and House are to be stormed by the motoring women July 31.

Already a number of State parties of women are on their way here awheel. An official announcement says that delegations are now on the road from Montana, Tennessee, Virginia, New York, Massachusetts, Pennsylvania, New Jersey, and several other States.

These early starters are speaking for the "cause" along the way and swelling their lists of signatures to the petition to Congress.

If it is really true that the good women (and especially the mothers) of our land are marching on to Washington, we shall certainly have national suffrage for women sooner or later. Just now the world (including China) is demonstrating that girls and women can do almost any thing that boys and men do. We have women on the police force in many of our large cities; women at the head of our schools in our great cities; women managing farms better than the general run of men manage—women everywhere. Why should not these women who own vast properties, and fill important positions, have a word to say in regard to law-making and law enforcement? With woman suffrage ends the thralldom of the liquor-traffic. No brewer or liquor-dealer will fill an important office when the women vote; and the brewers and the liquor-dealers will make the fight of their lives, before they permit women to have the right

of suffrage. Watch and see if I am not right.

THE LABOR TROUBLES OF THE PRESENT DAY.

We are receiving quite a few articles in regard to trades unions, socialism, etc. Some of them are so extreme, or at least look so to me, as to condemn every man who employs labor. May be I misunderstand, but that seems to be the drift of some of the extremists. Perhaps they mean that the man who employs labor should not make any profit. He should pay the man he hires enough so that employer and employee will be on an equal footing. I should like to see some of these people try to run a factory employing, say, a hundred men more or less. The employer who undertakes the responsibility of paying his help every Saturday night must have a margin. Sometimes he makes a profit; but at other times, in spite of all he can do, he loses money. He does not get for his goods what they cost him. Unavoidable losses and disasters occur. He must have some capital stored up to meet these emergencies. It is like having a storage battery to light our homes when the engine is not running, or when the wind does not blow. Young people who start out in the world must, as a rule, work for wages till they can get a start so as to own a farm or set up in business; and they get this start by working for some older person who has been able to save up a little and employ help, and pay that help promptly. I am glad to see laboring people forming a combine or union to protect themselves from greedy capitalists or greedy manufacturers, and they have a perfect right to fix their wages. Whenever they think their employer is making too much profit on labor it is certainly their privilege to refuse to work any longer at the price they have been getting, and this whole thing ought to be arranged pleasantly on both sides. When we can not agree, let us "agree to disagree." But when the man who has dropped his job because the pay is not sufficient presumes to interfere with somebody else who would like to take the work he has dropped, it is all wrong, as I see it. Is it not like the old fable of the dog in the manger? He can not eat the hay, or, if you choose, he *will* not eat it; but at the same time he plants himself there, and refuses to let the hungry horses and cattle have the hay they would be glad to get.

Quite a number of articles I have received reject the good old Bible, and make sarcastic remarks in regard to the Christian religion. Of course we can not give place to such articles in these pages.

SPECIAL SALE!

Root's Goods Below Our Cost

Beekeepers will change their minds and use different kinds of supers all of a sudden. Our trade used, before section-supers, shipping cases, etc., while now nearly every beekeeper in our locality produces bulk comb honey, which, consequently, leaves us with a big stock of section supers on hand, which we are willing to sell very cheap just to dispose of them. They are all in the original packages, just as we received them from the factory, and there is absolutely nothing the matter with them, only we have hardly any more sale for them in our locality.

70 2 I-8.....	.37 each	60 2 P-8.....	.37 each
25 4 I-8.....	.50 each	100 4 I-10.....	.55 each
65 4 S-8.....	.50 each	80 2 I-10.....	.40 each
40 2 S-8.....	.37 each	35 4 S-10.....	.55 each
40 4 P-8.....	.50 each	75 2 S-10.....	.45 each

10,000 4 x 5 x 1 $\frac{3}{8}$ plain sections, 100 for .55; 300 for \$2.00; 1000 for \$3.70.

SHIPPING-CASES

With glass, in lots of 10

150 24-lb. regular 4-row for 4 $\frac{1}{4}$ x 1 $\frac{1}{2}$ sections.....	\$1.30	\$12.50
150 12-lb. regular 3-row for 4 $\frac{1}{4}$ x 1 $\frac{7}{8}$ sections.....	.90	8.50
150 12-lb. regular 3-row for 4 $\frac{1}{4}$ x 1 $\frac{1}{2}$ sections.....	.85	8.00
100 24-lb. regular 4-row for 4 x 5 x 1 $\frac{3}{8}$ sections.....	1.20	11.50
150 12-lb. regular 3-row for 4 x 5 x 1 $\frac{3}{8}$ sections.....	.90	8.50

HONEY-CANS

As in previous seasons, we have prepared a very large and complete stock of honey-cans in our warehouse, ready for immediate shipment to you. Our honey-cans this season are the product of the largest independent can-manufacturing company in the United States, and are warranted to be the best grade possible to procure. Every can and case is fully guaranteed to give absolute satisfaction. The boxes are of the very best material that can be obtained for packing honey-cans, being strong and substantial, and securely nailed with cement-coated nails.

Prices quoted on application. Full line of Root's Beekeepers' Supplies always on hand.

Toepperwein & Mayfield Co.

San Antonio, Texas

Starving America

By
Alfred W. McCann

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We Offer One Copy of **STARVING AMERICA**

Regular Price \$1.50

and **GLEANINGS IN BEE CULTURE** One Year

Regular Price \$1.00

Both for

\$2.⁰⁰

The A. I. Root Company
Medina, Ohio

ROOT'S BEEKEEPERS' SUPPLIES . . .

You may have a catalog of supplies; but if you haven't ours you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Extensive and prosperous beekeepers are writing us frequent letters like the following:

The A. I. Root Co.:—We have bought bees almost every season for a great many years, and in this way handled several styles of frames; but to date we have not found any thing that compares with your metal-spaced frame for an all-round fixture.

For the benefit of students we have experimented with other styles of metal spacers, and in every case imperfections were soon discovered. Your metal-spaced frame has many good points to recommend it, and we began using this style of frame the first season it was put on the market, and have more than 20,000 of them in use now.

For strength and rapid manipulation this frame has no equal. We use it alike in brood-chamber and extracting-supers, as with our plan of management a frame may be in the brood-chamber at one time and in the super at another, or the reverse may be true.

Janesville, Minn., March 8, 1912.

THE HOFMANN APIARIES, per E. L. Hofmann.

Our catalog also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in the line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

BRANCH OFFICES

New York, 139-141 Franklin St. Chicago, 213-231 Institute Pl.
Philadelphia, 8-10 Vine St. Des Moines, 565 W. 7th St.
St. Paul, 1024 Mississippi St. Syracuse, 1631 Genesee St.
Washington, 1100 Maryland Ave., S. W.
Mechanic Falls, Maine

Distributing Depots in Many
Large Centers

The A. I. Root Company

Executive Offices and Factory
MEDINA, OHIO



W. L. BARNETT
1881-1911
Agricultural
College

Gleanings in Bee Culture



VOL. XLI. AUG. 15, 1913, NO. 16.

Bees by the Pound

**Safe arrival guaranteed to any point
within five days from Medina, Ohio.**

We have finally perfected our pound packages so that we are now able to ship bees without combs to almost any point in the United States and nearby points in Canada without danger of transmitting bee disease of any sort. Half a pound of bees is nearly the equivalent of a two-frame nucleus; one pound, to three frames; two pounds, to six frames; three pounds, to an ordinary colony such as may be sent by express. The express on these pound packages is only about a quarter of the express on the equivalent value of bees when they are sent on combs. We shall be ready to ship bees in pound lots from Medina, with 600 colonies to draw from, by the first of June, at the following prices, without queens: Half-pound package, \$2.00; pound package, \$3.00; two-pound package, \$5.00; three-pound package, \$6.00.

Through July, and on throughout the season, the prices without queens will rule as follows: Half-pound package, \$1.00; pound package, \$1.50; two-pound package, \$2.50; three-pound package, \$3.00.

If you want queens with the pound packages, add the price of the queen selected to the price of the bees.

Express on half a pound of bees with queen, within 300 miles of Medina, will be approximately: One pound, 38 cts.; two pounds, 45 cts.; three pounds, 57 cts.

NOTE.—We can not ship bees by parcel post other than a queen-bee and a dozen or so attendants.

We have so perfected our cages for shipping bees in pound lots that we now feel for the first time that we can guarantee safe arrival at the prices named above, where bees are not on the road more than five days. As a general thing they will go through in good condition, even when out more than six days; but for the present, at least, we do not feel like assuming a greater limit than five days. Our guarantee means that, if bees fail to go through alive, or if they go through in bad order, we will either replace the shipment or send enough more bees to make up for the loss at our own expense, or refund the money. Orders will be filled in rotation after the first of June. Send in your orders now, and thus insure early delivery.

In addition we guarantee to give full measure of bees by weight. Half a pound will contain from 2200 to 2500 bees, and larger packages in proportion.

PRICES OF QUEENS.

Untested.....	July to October, \$1.00.
Select untested.....	July to October, 1.25.
Tested.....	July to October, 2.00.
Select tested.....	July to October, 3.00.

Untested Home-bred Queens in Quantity Lots in August and September.—During August and September we are prepared to name very low prices on large quantities for requeening. Prices depend on supply available, and quoted on application.

Send all orders to the home office of The A. I. Root Co., Medina, Ohio. Orders from the extreme South will be filled from Florida and Texas; those in the extreme West, from California.

N. B.—To get the price of a package of bees and a queen, add the price of the queen selected to the price of the package.

"falcon" Queens.....

Three-band and Golden Italians, Caucasians, and Carniolans

Untested, July 1 to October 1 . . . One, \$.75; six, \$4.25; twelve, \$8.00
 Select untested, July 1 to October 1, " 1.00 " 5.50 " 10.00
 Tested, \$1.50 each. Select tested, \$2.00 each.

All queens are reared in strong vigorous colonies, and mated from populous nuclei. Instructions for introducing are to be found on the reverse side of the cage cover. A full line of bee supplies and foundation manufactured by us at Falconer, N. Y. Write for samples of our foundation and Red Catalog, postpaid.

DEALERS EVERYWHERE.

Red Catalog, Postpaid.

"Simplified Beekeeping," postpaid.

W. T. FALCONER MFG. CO., FALCONER, N. Y.

Where the good bee-hives come from

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time"
 It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard

Send for Annual Catalog which will tell you who is your nearest Distributer.
 G. B. Lewis Company, Watertown, Wis.

SUPERIOR GOLDEN QUEENS FOR HONEY

Beauty, color, and gentleness, and non-swarming.
 Untested, \$1.00 each; six, \$5.00. Tested, \$2.00; select tested, \$3.00. Breeders from \$5.00 to \$20.00.
 See what this customer says:

MR. J. B. BROCKWELL:—I want to say something in behalf of the nice Golden Italian queens I received from you last year and this year. The ones that I ordered from you last year have done better than any bees that I have received from any one else; besides, they have produced nice golden bees, and the queens are the most prolific I have ever seen, and are superior to any other bees I have as honey-gatherers. The ones that I bought from you last year, none have attempted to swarm, and have made twice as much section honey as any other bees that I have in my apiary.

My bee friends are perfectly enthused over the appearance and the gentleness of these bees, as you see from the numerous orders which we are sending you.

July 25, 1913.

J. W. BLACK.

J. B. BROCKWELL, MALVERN HILL, VA.

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, 75 cts.; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c. E. E. MOTT, Glenwood, Mich.

BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
 486 Canal Street

HOW FAR CAN A BEE SEE?

That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think! The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. 10c a single copy.

Edward F. Bigelow, Editor,

The Agassiz Association, Inc.

ARCADIA:

Sound Beach, Connecticut



Established 1885

We carry an up-to-date line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. . . . Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
 High Hill, Montgomery Co., Mo.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled; combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

CHICAGO.—There is but little change in the honey market from our last report as regards price, with the exception of extracted, which is about 1 ct. per pound lower, and is also slow of sale. Receipts are in excess of the ordinary season in this market.

Chicago, August 2. R. A. BURNETT & Co.

INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cents in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cents, cash or trade.

Indianapolis, Aug. 2. WALTER S. POWDER.

ALBANY.—Our market is entirely bare of both comb and extracted honey, with a good demand for comb; but as yet we have not received any new arrivals. Look for a high market on comb honey this season. Our shippers report a very light crop of clover. Fancy clover brings 17 to 18; No. 1, 15 to 17.

Albany, Aug. 2. H. R. WRIGHT.

ZANESVILLE.—There is little change since my last report. The demand for honey seems to be a little better than usual, with no very material change in prices. Except small lots produced locally, but little of the new crop is arriving. For best grades of white comb, producers are offered 13 to 14; 15 for extra-fine lots and immediate shipment. Prices to the retail trade are largely arbitrary. Extracted is in rather light demand, and prices are unsettled. Thirty cents cash, 32 in trade, is being offered producers for beeswax.

Zanesville, Aug. 4. E. W. PEIRCE.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT

Editor

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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PARIS, FRANCE. E. Bondonneau, 120 Avenue Emile Zola.

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BOSTON.—Fancy and No. 1 white comb, 16 to 17; fancy white, 11 to 12. Beeswax, 30.
Boston, Aug. 5. **BLAKE LEE CO.**

SCHENECTADY.—We have received no new honey yet except extracted in glass jars, and are unable to quote actual selling prices. We have had numerous calls for comb honey, and think producers make a mistake in not placing their early honey on the market as soon as possible, when there is a demand from summer resorts and tourists.

CHARLES MACCULLOCH.

Schenectady, N. Y., Aug. 5.

LIVERPOOL.—Our market is steady, but only finest qualities meet with any enquiry. About 100 cases of fine white Chilian sold at \$8.40 to \$9.60 for low to extra pile X, with retails of pile X in barrels at \$8.40, and pile 2 at \$6.96. A fair trade is done in Californian at \$10.20 to \$11.25 for light amber to white. Retail sales of fine Jamaica at \$9.12 have taken place. The beeswax market is dull, buyers being fully supplied with deliveries of forward contracts. We quote \$37.02 to \$41.28 for Chilian as to quality.

Liverpool, July 26.

TAYLOR & CO.

ST. LOUIS.—Southern honey in barrels and five-gallon cans continues to arrive, and the price is established at 6½ cents in barrels and 7 in cans for pure light-amber honey. There is no California or Western honey in this market, and quotations are nominal at 8 to 8½ for white and 8 for light amber in five-gallon cans. Comb honey is not in demand, and the receipts are a little heavier the last week or ten days. The quotations are nominal at 16 to 17 for fancy white comb honey; No. 2, 15; light amber, 13 to 14. By the case, fancy white comb honey brings \$3.65 to \$3.75; No. 2 white, \$3.25 to \$3.40; amber, \$2.75 to \$3.10, according to quality. Dark or broken honey is almost unsalable. Beeswax is in good demand at 32 cents for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., August 4.

WESTERN QUEENS!

Red-clover Strain of Italians

For fall introduction and late brood-rearing you can't do better than to introduce our stock. They work on red clover as readily as other flowers. Do you realize what this will mean for your next year's honey crop.

PRICES.—Untested, 1, 90c; 6, \$4.80; 12, \$9.00. Tested, 1, \$1.35; 6, \$6.50; 12, \$12.00. Queens shipped on one-frame nuclei, \$1.75 extra. Virgins, 40c. Safe arrival and satisfaction guaranteed.

Glen L. Evans, Greenleaf, Idaho

Breeder and Importer of Fine Queens

QUEENS--3-band Italians

75 cts. each, \$4.25 for 6, \$8.00 per doz.

If these queens fail to please your money will be returned.

L. H. ROBEY

WORTHINGTON, WEST VIRGINIA

FAMOUS QUEENS direct from ITALY!

Bees more beautiful, more gentle, more industrious; the best honey-gatherers. **Universal Exposition, St. Louis, Mo., 1904,** the highest award. Extra breeding queen, \$3.00; selected, \$2.00; fertilized, \$1.50. Write **ANTHONY BIAGGI,**

Pedevilla, near Bellinzona, Switzerland.

Please in writing mention GLEANINGS.

ITALIAN BEES AND QUEENS

Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50. Try me for rush order.

J. L. FAJEN, .

OVER, MISSOURI



You are as Close

to this bank, for all practical purposes, as if you lived in Medina, when you avail yourself of our **BANKING BY MAIL** plan.

Send your deposit in the form of a check, draft, money order, or registered letter, and you receive the same service in the matter of protection for funds, rate of interest, and the withdrawal of money when needed, as if you came to the bank personally.

\$1.00

OPENS A

SAVINGS ACCOUNT.

CHECKING ACCOUNTS INVITED, whether large or small.

The SAVINGS DEPOSIT BANK COMPANY

Medina, Ohio

Assets Over One Million Dollars

TENNESSEE-BRED QUEENS

41 Years' Experience in Queen-rearing

Breed 3-band Italians Only

I am at last up with all contracts, and can fill orders by return mail — two to five dozen daily. Prices for remainder of season:

Untested, one for 75c:

six for \$4.00;

twelve for \$7.50.

Tested, double these prices.

The very best BREEDER, \$10 00.

Select Breeder, \$5.00.

Write for prices on larger orders.

John M. Davis
Spring Hill, Tenn.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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Twenty-five cents per agate line, flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

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Preferred position, inside cover, 50 per cent additional.

Outside cover page, double price.

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Cash-in-advance discount, 5 per cent.

Cash discount if paid in ten days, 2 per cent.

Bills payable monthly.

No medical or objectionable advertising accepted.

Column width, 2 $\frac{5}{8}$ inches.

Column length, 8 inches.

Columns to page, 2 (regular magazine page).

Forms close 10th and 25th of each month.

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RUSH ORDERS

BY MAIL.—Has your "forgettery" been working? And right this minute you need foundation or other items. See page 1 of our catalog, and it gives parcel-post rates on various articles.

BY EXPRESS.—Larger shipments than can go by mail we can rush out at once. Parcel-post and express orders receive our first attention.

BY FREIGHT.—Our rule is "ship same day the order is received," and we break it only when absolutely necessary. Notice that Lansing is the railroad center of Michigan from which freight shipments can be delivered quickest.

And we fill all orders with Root's goods. Just remember that too. Send for catalog. Beeswax wanted.

M. H. HUNT & SON, LANSING, MICH.

OPPOSITE LAKE SHORE DEPOT.

THREE-BAND ITALIAN QUEENS

Now is the time to requeen your bees from a select lot of queens now ready for prompt delivery. Untested, \$1.00; warranted, \$1.25; tested, \$2.00. Special price will be named on quantity lots.

Earl M. Nichols, Lyonsville, Mass.

IF YOU USE

bee supplies you should have our catalog.

We sell the best No. 25 jar made.

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A long article on this subject is to appear in the **AMERICAN BEE JOURNAL** beginning with August, 1913, number, continuing through September, 1913. It is written by

DR. C. C. MILLER

himself a cellar winterer. Dr. Miller gives the results of his experiences and experiments, with comments on the same, in a manner interesting and instructive to all. The October number of the same journal will contain criticisms of the article by Dr. E. F. Phillips, of the Government Department, with Dr. Miller's replies.

The editor of the **AMERICAN BEE JOURNAL**, Mr. C. P. Dadant, is in Europe for a few months investigating the different races of bees, etc., there. Read what he has to say in the coming numbers.

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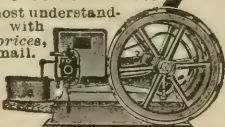
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GOLDENS.—An opportunity to get Ben Davis' famous utility Goldens. Yard stocked from his apiaries. Breeder kept 16 frames filled until put in nucleus in June. Drone colonies headed by mothers of strain producing over 178 perfect $4\frac{1}{4}$ sections last flow. Especially immune to European foul brood.

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All queens reared in full colonies during honey-flow; mated in four-frame nuclei, which gives large, vigorous, and prolific queens. Purity of mating, safe arrival, satisfaction, freedom from disease guaranteed.

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This is the best season of the year to requeen.

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"LINE BRED" for the past 27 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, \$1.00; six for \$5.00; dozen for \$9.00. Select untested queen, \$1.25; six for \$6.00; dozen for \$11.00. Tested queen, \$2.00; six for \$9.00; dozen for \$15.00. Select tested, \$3.00. Best breeder, \$5.00. Extra select, the very best we have, \$10.00. Safe arrival guaranteed in United States and Canada. No foul brood here.

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is again ready to fill your orders for queens the present season. Law's Red-clover Italians are as good as can be had.

One firm who bought over 1100 queens from me in 1912 says, "Your queens are very satisfactory." We are booking orders now, and we are going to do our level best to mail all queens by return mail when so ordered. My bees are absolutely clean and free from all disease.

Queens sent out under the usual guarantees. Prices: Single queen, \$1; six for \$5. Breeding queens, none better, each, \$5.

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Famous Italian Queens!

from the Apiaries of
WALLIN & CORLIS

have won a world-wide reputation for prolificness, hardiness, gentleness, and honey-gathering. Our queens are reared scientifically from breeders perfected by years of elimination. We have the famous Moore strain of Italians, and are giving every care to the perfection of cells and mating.

Satisfaction and safe arrival guaranteed. Circular free.

Untested, 75 cts.; dozen, \$8.00.

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Miller's Strain of Red-clover ITALIAN QUEENS

By Return Mail or order returned

Bred from superior breeders for business; gentle; no better hustlers; bees roll honey in; three-banded; Northern-bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored strains. Untested, 75 cts.; six, \$4.00; dozen, \$7.50. Select untested, \$1.00; six, \$5.00; dozen, \$9.00. Satisfaction guaranteed.

Isaac F. Miller, a queen specialist and breeder for sixteen years, previously of Brookville, Rt. 2, Reynoldsville, and lately of Oil City, Rt. 2, Pa., is agent and breeder for E. L. Miller. Send all orders to
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Carniolans are good winterers—prolific, gentle, enter supers readily, and excellent honey-gatherers. Untested, \$1.00; dozen, \$9.00. Tested, \$1.50.

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A cross between the Italian and Carniolan. Most excellent honey-gatherers, but not so gentle as Carniolans. While they last, 90 cts. each; dozen, \$8.00.

Bees by the pound through August. Ask for prices.

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An improved superior strain of Italians is what **QUIRIN RAISES**. Our stock is Northern bred and hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis., and July 20th (of same year) he wrote us saying they did just splendid, as at that date they had already filled their supers, and that he would have to extract them. We have files of similar testimonials.

Prices for rest of season	1	6	12
Select queens	\$.75	\$ 4.00	\$ 7.00
Tested queens	1.00	5.00	9.00
Select tested queens	1.50	8.00	15.00
Breeders	3.00	15.00	
Golden breeders	5.00		
Two-comb nuclei, no queen	2.25	12.00	32.00
Three-comb nuclei, no queen	3.25	18.00	32.00
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One pound bees, no queen	1.50	8.00	
Half pound bees, no queen	1.00	5.00	

Add price of queen wanted with bees. Bees by the pound, nuclei, and colonies; if wanted before June 1, add 25 per cent. **QUEENS NOW READY.** Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

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Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

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Safe arrival and satisfaction guaranteed.

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Untested, 75c; tested, \$1.00 each.

For lots of 50 or more write me.

Prompt delivery and satisfaction to everybody.

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- 12 BACK-YARD BEEKEEPING. Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 13 THE BUCKEYE BEEHIVE, or the management of bees in double-walled hives. Of special interest to the amateur beekeeper. The most complete booklet we publish for free distribution. Illustrated throughout; 84 pages.
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Send us your name and address and we will send you, free of charge, a copy of a pamphlet edited by Ralph Allen, of Herts, England, the conductor of the original English experiments with mustard. The book contains a full account of these experiments, together with testimonials from some of the most prominent American users of French's Poultry Mustard.

The time to begin the use of French's Poultry Mustard is at the very beginning of the moulting season. At this time its results are most valuable.

Write Now to

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Case white-clover honey, 24 sections.....	8	6	4
Case Linden honey, 24 sections.....	8	6	4
Case sweet-clover honey, 24 sections.....	8	6	4
Case any other white comb honey.....	8	6	4
Case buckwheat, heartsease, or any other dark honey, 24 sections.....	6	4	2
Best and most attractive display of honey, 300 lbs. or more.....	20	15	10
White-clover extracted in glass, 24 lbs. or more.....	7	5	3
Linden extracted in glass, 24 lbs. or more.....	7	5	3
Sweet clover extracted in glass, 24 lbs. or more.....	7	5	3
Other white extracted in glass, 24 lbs. or more.....	7	5	3
Buckwheat, heartsease, or any other dark extracted in glass, 20 lbs. or more....	5	3	2
Granulated extracted, best and most attractive, 12 lbs. or more.....	7	5	3
Beeswax, not less than 10 lbs.....	7	5	3
Honey vinegar, not less than 1 gallon....	7	5	3
Nucleus golden-yellow Italians and queen in observation hive.....	8	6	4
Leather-colored Italians and queen in observation hive.....	8	6	4
Best and most attractive display of extracted honey, not less than 100 lbs.....	20	15	10
Best display cooking or baking with honey instead of sugar for sweetening.....	7	5	3
Best queens shown in cages.....	4	3	2
Queen-rearing outfit.....	3	2	1
Most perfect brood-combs, not less than 3 SVEEPSTAKES.....	3	2	1

Largest and most attractive exhibit in this department, including bees, honey, tools, beeswax, etc..... 25 15 10
(Clubbing together of exhibitors to make this display not permitted.)

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E. C. PIKE, St. Charles, Ill.

FOR SALE.—Light and amber extracted honey in new 60-lb. cans. Sample, 5 cts.
J. WARREN SHERMAN, Sag Harbor, N. Y.

FOR SALE.—Finest quality clover and clover-basswood honey in 60-lb. cans.
O. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

WANTED.—Extracted clover honey in 60-lb. cans. Mail good-sized sample and best prices.
ALBERT G. HANN, Pittstown, N. J.

Fine ripe clover and basswood honey mixed. A fine blend in 60-lb. square cans, two cans to case. Price 9 cts. per lb.; sample, 5 cts.
C. A. BUNCH, Lakeville, St. Joseph Co., Ind.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free.
P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Nice thick well-ripened clover honey in 60-lb. tins, 2 to the case, at 9½ cts. per lb.; 2 cases or more at 9 cts. Sample, 5 cts.
M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

FOR SALE.—Comb and extracted honey from clover or Spanish needle. This honey was fully ripened on the hives, and is of superior body and flavor. In 60-lb. tins or small pails.
F. B. CAVANAGH, Hebron, Ind.

WANTED.—Honey in car lots. If you have or expect to have a car of honey, or if a car can be had in your vicinity, write to us and state your prices, delivered on car at your station.
OGDEN BEE AND HONEY CO., Ogden, Utah.

8000 lbs. new crop of hulled yellow-sweet-clover seed (biennial); 10 lbs. by mail, prepaid, \$3.10; 50 to 100 lbs., 20 cts. per lb.; also 100 lbs. hulled white, \$28.00; alfalfa seed, 15 cts. per lb.
R. L. SNODGRASS, Augusta, Kan.

RASPBERRY HONEY for sale.—This honey was left with the bees until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. It is put up in new 60-lb. tin cans. The price is \$6.00 a can. Sample by mail, 10 cts. The 10 cts. may be applied on an order for honey.

ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb and extracted honey in quantity. Clover and raspberry preferred.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—5000 to 10,000 lbs. comb honey; different grades; price must be right. Address C. M. H., care A. I. Root Co., Medina, Ohio.

We will pay the highest cash price for thoroughly ripened extracted honey. Write us, stating quality and quantity, with prices F. O. B. your station.
SPENCER APIARIES, Nordhoff, Cal.; St. Louis, Mo.

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GEO. E. KRAMER, Valencia, Pa.

WANTED.—A good second-hand extractor.
RAY HOLLENBAUGH, Fostoria, Ohio.

WANTED.—Second-hand honey-extractor; small power preferred. State price. R.C.R., bx 95, Clyde, O.

WANTED.—Bees, queens, and supplies in exchange for poultry and printing.
HERBERT SHARP, Printer, Berwick, Maine.

WANTED.—To sell one, two, and three frame nuclei with untested queens, cheap.
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REAL ESTATE

Fertile Virginia farm lands, \$15.00 per acre and up. Easy payments. We will mail you our beautiful illustrated magazine one year free if you will send names of two friends who are interested in Virginia.
F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., N. & W. Bldg., Room 73, Roanoke, Va.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices.
THOS. LITZ, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. CO., Greenville, Tex.

In 1912 and '13 our bees wintered perfectly in the Eureka concrete case. Write for circular and learn about them.
B. T. BOSSERMAN, Williamstown, O.

Learn Bee Culture.—Start a business of your own. Sample lesson and particulars, 10 cts.
E. E. HAMILTON, Seymour, Ind.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars.
THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—One hand-operated paper-cutter and one check-protector, a device for protecting commercial paper. The last named will be useful in business houses, and the first mentioned will be of use in a small printing establishment. I will sell either at far below cost. Correspondence solicited.

MRS. W. Z. HUTCHINSON, Flint, Mich.

POSITION WANTED

WANTED.—Situation. Bees and crops failed. I wish employment for the winter or longer. Am 18 years old; strong, and free from bad habits; can handle bees, poultry, or stock; also light carpentry. State wages. A hustler.

LEON MORRIS, Elizabethtown, Ind.

BEES AND QUEENS

FOR SALE.—100 colonies of Italian and hybrid bees. J. L. SANSOM, Aberdeen, Miss.

FOR SALE.—Seventeen colonies Italian bees and fixtures. EDWIN EWELL, Litchfield, Mich.

Red-clover Italian queens, untested, 75 cts.; tested, \$1.25; breeders, \$5.00. J. H. GIBBS, Berlin, Md.

Golden Italian queens, \$1.00 each; six for \$5.00. Warranted. J. B. CASE, Port Orange, Fla.

FOR SALE.—Untested golden Italian queens, 50 cts. each. J. F. MICHAEL, Winchester, Ind.

A limited number of leather-colored Italian queens. Send for price list. GEO. B. HOWE, Black River, N.Y.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

FOR SALE.—Untested queens that produce; 75 cts.; tested, \$1.00; hybrids, 30 cts. S. H. RICKARD, 506 Machesney Bldg., Pittsburg, Pa.

FOR SALE.—Italian queens from best strain. Pure mating guaranteed. Untested, 50 cts. each. D. E. MEYER, Lowell, Ark.

FOR SALE.—Full eight-frame colonies of Golden Italian bees, young queen, \$6.00 with super. HILLCREST FARM, Winchester, Ind.

FOR SALE.—Italian queens, untested, 75 cts.; 6 for \$4.00; 12, \$7.00. I can fill orders promptly. E. A. SIMMONS, Greenville, Ala.

Fine Italian queens, three-banded, prolific, hardy, gentle. Untested, 75 cts. each; 6 for \$4.25; dozen, \$8.00. J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

FOR SALE.—Golden Italian queens, tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00. D. T. GASTER, Rt. 2, Randleman, N. C.

Queens by return mail, untested, \$1.00 each; six, \$5.00; \$9.00 per dozen. Italians and Carniolans. WM. ATCHLEY, Beeville, Bee Co., Texas.

FOR SALE.—100 colonies of bees at \$2.50 each, buyer to take them at the yard. R. J. SMITH, Ticonderoga, N. Y.

Hardy northern-reared queens of Moore's strain of Italians, ready June 15. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. P. B. RAMEE, Harmony, Minn.

I will sell untested Italian queens at 60 cts. each, \$5.00 per dozen; no disease. Safe arrival guaranteed. EDWARD O. MESERVE, Ventura, Cal.

Goldens that are golden, pure Italian queens \$1.00 up. Send for booklet, but do not send rush orders. GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

FOR SALE.—27 colonies of bees in painted hives; also new extractor and tools. Must be sold at once. Make an offer. N. D. YOUNG, Fort Plain, N. Y.

Virginia three-banded Italian queens, untested, 65 cts.; tested, 85 cts. All dead queens replaced free. Ready May 15. S. CLICK, Box 16, Rt. 2, Mt. Jackson, Va.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address DERBY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—Full colonies of Italian bees with young queens, \$6.00; nuclei, \$1.25 per frame; queen extra. Write for prices on queens. ARVIN, NUSBAUM CO., Meldrim, Ga.

Fine Italian queens, reared by best-known methods of a \$10 Doolittle breeder and select imported stock. Untested, 75 cts. each; 6 for \$4.00, by return mail. J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—New England Italian queens; untested, 75 cts.; tested, \$1.00; breeder, one year old, \$3.00 to \$5.00; 27 years' experience; foul brood unknown. E. S. WATSON, Rt. 2, Madison, Maine.

FOR SALE.—After June 20, fine Golden Italian queens, 75 cts. each; 6 for \$4.00; few choice breeders at \$3.00 each. Cash with order. Good honey-gatherers. EDWARD REDDOUT, box 43, Lysander, N.Y.

FOR SALE.—Some fine hives of Italian bees cheap. Retiring from business. All in good working order. Free from disease, and all right in every respect. Address DR. JOHNSTON, Suffern, N. Y.

Choice virgins, 40 cts. each; 3 for \$1.00; untested, 60 cts.; tested, \$1.25; breeders, \$2.50; Italian or Carniolan. STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Fine-bred golden Italian queens of stock that has 84 lbs. (3 crates) of white, alsike, and red clover by July 1. Will make that much yet of goldenrod and buckwheat. Untested, \$1.00. Breeding queens, \$3.00 to \$5.00. WILL H. CARL, Elysburg, Pa.

FOR SALE.—My entire apiary of 175 colonies of Italian bees with complete outfit for running the same for comb honey; also International Harvester auto truck. Selling on account of sickness. J. S. SHATTERS, Fort Lupton, Colo.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00. WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Malvern Hill, Va.

Goldens and three-band Italian queens from the Golden State. Queens by return mail. No disease. One, 75 cts.; 6 for \$4.00; \$8.00 for 12. Special prices in large quantities. LEMUEL J. DUNN, 14 Garfield Ave., Rt. 6, San Jose, Cal.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed. C. B. BANKSTON, Buffalo, Leon Co., Texas.

FOR SALE.—From 800 to 1400 colonies of bees, good condition, combs straight, in Hoffman self-spacing brood-frames. Price \$5.00 per colony for 1½-story hives, F. O. B. Boulder, Colo. Supplies at market price in flat. W. P. COLLINS, 1504 Pine St., Boulder, Colo.

Special Notice.—Now is the time to requeen your bees. We have some very choice red-clover Italian queens that we will send by return mail. Tested, \$1.00; 6, \$5.00; untested, 75 cts. each; 6, \$4.00. We will guarantee every queen to give satisfaction. FRED LEININGER & SON, Delphos, Ohio.

Famous North Carolina bred Italian queens for sale. Plenty of fine queens on hand; good as the best. Up with obligations. Send in your orders. See June and July advertisements GLEANINGS for 1913. Untested, one, 75 cts.; 50, \$25; 25, \$13. Select untested, 50, \$30; 25, \$14; one, 90 cts. Circular free. H. B. MURRAY, Liberty, N. C.

Choice Italian queens, "red-clover" strain. Gentle, hardy, hustlers for honey, white-cappers, no disease; 75 cts. up. Send for circular if interested.

A. J. SEAVEY, Rt. 2, Farmington, Maine.

FOR SALE.—Italian queens. Stock industrious, gentle, pretty. Tested, \$1.00; untested, 75 cts. in August and September. Circular free.

W. A. H. GILSTRAP, Rt. 3, Modesto, Cal.

Queens of Moore's strain of Italians reared by F. L. Aulick, located in mating distance of Moore's bees, are winners. One trial will convince the most skeptical. Untested, \$1.00; six, \$5.00; 12, \$9.00. Safe arrival and satisfaction guaranteed.

F. L. AULICK, Rt. 3, Falmouth, Ky.

Queens by return mail. Three-banded untested Italian queens, 60 cts. for 1; \$6.60 for 12, and \$50 for 100. Good as can be had at any price. No disease. Satisfaction guaranteed. If any untested queen I have sent out has proved to be impurely mated, I am willing to replace her free.

W. D. ACHORD, Fitzpatrick, Ala.

Italian queens. Gentle three-banded stock, bred for honey-gathering ability. Good red-clover workers and good winterers. Prompt service, fair prices, and no disease. Untested queen, 75 cts. each; 6 for \$4.25; 12 for \$8.00; 50 for \$32.00. Safe arrival in the U. S. or Canada, and guaranteed to please.

H. C. SHORT, Winchester, Ohio.

FOR SALE.—Guaranteed purely mated three-banded Italian queens. I recommend four points—gentle, prolific, extra good honey-makers, good winterers. J. E. Hand strain. State inspector's certificate. Queens by return mail or your money back. Select untested, one, 80 cts.; 6, \$4; 12, \$7; 25, \$13.

J. M. GINGERICH, Rt. 3, Arthur, Ill.

Queens from Georgia apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested, \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb, packed any size to suit customer. Prices and samples sent free.

JOHN W. CASE, Bogart, Ga.

Thanking my many friends for their liberal patronage, I will extend the present prices of my famous Moore strain of three-banded Italian queens to Oct. 1, and then, on account of other business, I shall be obliged to stop for this season. Do not send me any orders for queens after that date. Prices: Untested, 75 cts.; 10 for \$6.50; tested, 90 cts.; 10 for \$7.50. Not less than 6 queens to one address.

H. D. MURRAY, Mathis, Tex.

Three-banded Italian queens and bees. Untested queens, 75 cts. each; six, \$4.25; twelve, \$8.00; tested, \$1.25 each; six, \$7.00; twelve, \$12.00. For select queens, add 25 cts. each to the above prices. Nuclei without queens, one-frame, \$1.50; two-frame, \$2.50; three-frame, \$3.00; 1 lb. bees, \$1.50; ½ lb. bees, \$1.00. Add price of queen wanted with bees.

ROBT B. SPICER, Wharton, N. J.

FOR SALE.—100 colonies of bees with full set of extracting-combs and supers for each, extractor, honey-tank, and lot of necessary equipment. Also lot of empty hives and supers. Big honey-flow on. Crop goes with the bees, and will nearly pay for them. Good opportunity for outyards in best territory in the State. This is a bargain at \$750. Will also sell good home and truck farm, on reasonable terms. A. J. Meek. Address GEO. H. REA, Reynoldsville, Pa.

Try my famous strain of bees and queens, and be convinced that they are all I claim for them. For honey-gathering they have few equals, being bred strictly for business from the best strains that could be had, both queens and drones, as it is as important to have drones of the best as it is queens. Queens, Italian three-band, or Golden five-band, and Carniolans, bred in separate yards. Untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; 25, \$17.50; 50, \$34.00. Nuclei, with the untested queen, one-frame, \$2.50; 6 one-frame, \$15.00; two-frame, \$3.50; 6 two-frame, \$20.00. Nuclei with tested queen, one-frame, \$3.00; 6 one-frame, \$17.40; two-frame, \$4.00; 6 two-frame, \$23.40. Satisfaction and safe arrival and prompt service guaranteed.

D. E. BROTHERS, Attalla, Ala.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

Golden Seal.—Cuttings, plants, and seed-bearing roots for sale. Ask for prices.

J. A. HONABARGER, Warsaw, Ohio.

FOR SALE.—1912 crop ginseng seed. Ten thousand lots or more, 50 cts. per 1000.

S. PITTS, Stronghurst, Ill.

Have nice ripe tomatoes in November from your late green crop. Ripen without sunshine. Let me instruct you how. Address, with stamps, 520 Atwood St., Longmont, Colo.

POULTRY

Single-comb White Leghorns.—\$1.00 each; pullets and cockerels, yearlings and cocks; shipped anywhere. As many as desired. Write for catalog.

WOODWORTH FARM, Wilton, Conn.

BEEKEEPERS' DIRECTORY

If you need queens by return mail, send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

A. I. ROOT

"STARVING AMERICA."

Please see the advertisement in this issue of the above book, on the last cover page. Read over the table of contents. If this book were carefully read, and its teachings followed, it would make a revolution in doing away with a large per cent of the sickness, pain, and death that are afflicting the people of America just now. I take pleasure in giving the book this notice, not because of the small profit we make on it, but because I honestly believe the teachings of the book will prove to be a blessing to humanity. May God be praised that our government and our different States are looking into this matter of good and wholesome food, *undulterated*.

INSECT PESTS OF THE HOUSEHOLD.

I hold in my hand a very valuable bulletin of about 50 pages, headed as above. The first item is taken up with the common house-fly. Then we have a full up-to-date description of the different varieties of flies, mosquitoes, carpet-moths, cockroaches, bed-bugs, fleas, body lice, silver moth, typhoid flies, crickets, clover lice, grain beetles, fish-moth, etc. The best up-to-date remedies are given for all these pests. One of the first things mentioned is in regard to looking over your stuff often—not only house-cleaning "once a year," but overhauling every thing

in the house, say once a month or oftener. Second, tie up your things in paper bags where insects can not get in. Carefully screen your doors and windows, making your floors so tight with the modern floor varnishes or enamel that there is not a crack nor crevice where moth or other insects can get in, and using rugs instead of carpets. The old-fashioned carpet, tacked down clear up to the wall, and left so for a year, is almost sure to be a harbor for household pests.

This bulletin comes from our Ohio Experiment Station, Wooster. It is sent free to all residents of the State; but I can not tell whether it will be sent outside of Ohio or not.

THE OHIO WEED MANUAL OF ABOUT 100 PAGES.

This is a very valuable bulletin (also from our Ohio Experiment Station), describing the weeds of Ohio. It will prove valuable to beekeepers, for many of the so-called weeds are good honey-plants. There is only a brief mention of sweet clover; but the bulletin was put out in 1906, and sweet clover was not at that time as fully recognized as a blessing to humanity as it is at the present date. Very accurate and nice pictures are given of the greater part of the plants mentioned. These will enable the beekeeper or anybody else to recognize quickly any plant. Still more important, there are three pages of nice photos of the seed of pernicious weeds, also the seeds of all clovers. This is of especial value to the farmer who buys clover seed. With a magnifying-glass he can tell almost exactly what he may expect if he sows the seed that is offered for sale. In fact, he can get samples before buying; and this is specially important in purchasing alfalfa seed. Some of the very worst seeds known are brought on to the farm in clover seed that is purchased, unless great care is taken; and should the farm for any cause be neglected after such purchases, these foul seeds may crowd out the grass, clover, and every thing else. Such weeds are plainly visible in almost every locality in traveling over the country. A farmer dies, for instance, and perhaps nobody looks after the place for several years. If some of these pernicious weeds are once started it becomes a very difficult and expensive matter to get rid of them. In Northern Michigan quack grass and Canada thistle have in this way crowded out almost every thing else in neglected fields. The worst part of it is, they are often allowed to go to seed, and in this way do serious damage to good careful farmers whose fields adjoin. Of course, we have laws against permitting some plants (milkweed, etc.) to go to seed; but these laws are not always enforced.

Brief directions are given in regard to the best way to eradicate troublesome weeds; and a good up-to-date farmer rarely permits weeds of any kind to go to seed on his premises. But, unfortunately, his fields may adjoin those belonging to a slack or absent neighbor.

ROBBING SICK PEOPLE; SOMETHING ABOUT THOSE WHO PREY ON THE SICK.

It is a cowardly act to point a revolver at a strong man and demand his money; but just think how much more cowardly it is to go to some poor mortal who is near death with consumption, cancer, epileptic fits, and the like, and rob him of what few dollars he may have remaining, and give him nothing in return—perhaps *worse* than nothing. Our government has recently undertaken to punish quacks, and it has been demonstrated that millions of dollars have been given to these vultures who prey on sick humanity.

Three pamphlets from the American Medical Association, of Chicago, have just been put into my hands. The title of one of them is, "Professor Samuels, of Wichita, Kansas. A shrewd scoundrel who sells a solution of salt and sugar as a cure-all."

Another one is, "The United Doctors. Fake specialists who prey on the sick and defraud the public." The third one is entitled, "George H. Coutant and his fraudulent cure for deafness."

Let me give you a little illustration of the way these men work. A fake doctor was arrested; and among his effects were quite a number of "testimonials" different from those he published. Some were from poor people begging for their money back when they got no relief from his treatment; from other poor people after the patient had died before he had had a chance to take any medicine, or at least very little of it, asking for their money back. Did the good doctor return the money? Not much. In one case a poor woman scraped up money to send for medicine for her daughter. The daughter died before the medicine was received. Would he pay back the money to the poor woman, or any part of it? Not a copper. Like the Electropoise people they probably told her to sell it to some "ailing neighbor." Well, the above is bad enough, is it not? But listen.

It transpires that quite a few of these testimonials came from people who are dead. After a man is dead and gone it may be a difficult matter to prove he did not sign the testimonial. In one case a little girl, or perhaps a young woman, had been sorely afflicted with epileptic fits almost from her birth. A testimonial came out in the papers from her, telling what wonderful relief she had received. The fore part of the letter was a very truthful account of her sufferings; but when the testimonial was presented to her parents they said it was the first time they knew she had given any such testimonial—that, in fact, she had received no benefit at all from the treatment. When the girl herself was interviewed she acknowledged signing some paper in the doctor's office; but she was either too young or too stupid to think it necessary for her to read over the paper before signing her name.

The three pamphlets I have mentioned give full particulars of the way these rascals work to rob the sick.

A vivid illustration is now right before me of the way in which people get "notions" into their heads, or imagine they are helped. It is a pamphlet of 20 pages or more entitled "The Wonderful Story about Captain Rand." Well, this pamphlet is all about Captain Rand's lucky stone.* There are testimonials from perhaps a hundred

* See page 358 for 1912. At that time I submitted the pamphlets to the Postoffice Department at Washington; but Capt. Rand is still peddling his pebbles wherever he can find a victim.

people telling of the wonderful benefit they had received by having one of Captain Rand's lucky stones in their pocket. There are testimonials from all over the United States, including quite a few from Ohio, from men and women, who have had a wonderful "streak of good luck" by simply carrying a pebble in their pocket that was purchased of good Captain Rand for a dollar. The book goes on to say that Rockefeller, Paderewski, Madame Nordica, Li Hung Chang, and a great lot of other people have achieved success in life because they were "lucky," and not because of ability; and the inference would be that these shining lights of the present age had got hold of a lucky pebble which they carried around in their pockets; and you, my good friends, can be equally lucky, no matter how smart you are or how dull you are, if you will simply send a dollar for one of Captain W. I. Rand's lucky pebbles.

What ails our Postoffice Department that it can not rule this chap out of the mails for robbing—not sick people necessarily, but foolish and superstitious people who do not know any better.

By the way, there is a moral to this whole transaction. If people are cured, or imagine they are cured, which amounts to the same thing, by carrying a certain pebble in their pockets, is it not reasonable to suppose that thousands of others are cured by paying a big price for something in a bottle, even if it is only a solution of sugar and salt?

Yes, our people are waking up slowly. But it needs the American Medical Association and the United States Postoffice Department to give humanity now and then a good sound shaking that they may wake up a little faster, and cease giving their money to these highwaymen who are hunting up the sick and suffering and those near death. By the way, the latter class are perhaps their readiest victims because they are not alive to dispute the truthfulness of the testimonials that are printed and scattered throughout our land.

Why do not more periodicals take up the matter besides GLEANINGS and the *Rural New-Yorker*? Well, I am sorry to say it, but I presume one reason is these quack doctors have plenty of money, and they are always expected to pay spot cash for their swindling advertisements.

"ROBBING SICK PEOPLE."

If the following, which we clip from the *Chicago Advance*, is really true, and not a misprint, it would look as if my prayers were being answered, that our nation and

the whole wide world might soon be delivered from quackery and humbug nostrums:

Forty thousand eminent physicians and surgeons from every part of the United States and Canada met recently at Minneapolis in the sixty-fourth annual session of the American Medical Association. Special attention was given to the work of investigating and exposing frauds and nostrums.

If it is really true that the United States and Canada can furnish in one conference 40,000 physicians and surgeons, we may rejoice. Yes, and for one I shall rejoice if it transpires that there were only 4000 instead of 40,000; for 4000 would give the quacks and the nostrums a pretty big bump. Perhaps the world is bigger than I thought it was. In that case I willingly take off my cap and apologize to our medical brethren.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

SECOND-HAND 60-LB. EMPTY CANS.

If in need of good cans cheap, do not forget that we have a good stock of extra choice second-hand cans, two in a case, which we are selling at \$3.50 for 10 cases; \$7.50 for 25 cases; 100 or over at 25 cts. per case. If you do not find them free from rust on the inside we will replace any so found. They are excellent value for the money.

ONE-POUND ROUND JARS.

Since our last issue we have had word from the factory that makes our one-pound round jars, saying that, because of labor troubles, they are not able to furnish any more at present, and our stock is nearly gone. We have found at another factory another jar almost identical in shape, with a little larger opening, and which will hold a full pound of honey. They cost us some more, so the price will be 90 cts. per case, 6 cases for \$5.10. The price quoted in our last issue was 5 cts. a case lower than it should have been, and is hereby withdrawn. While they last, the price on the old pattern is 85 cts. a case, \$4.80 for 6 cases.

SHIPPING CASES SENT BY FIRST TRAIN AT BARGAIN PRICES.

Cases for 12 or 16 sections do not seem to be as popular as they once were. At any rate, we have a surplus stock of these sizes which we offer at bargain prices to close out. At the price we make, they are just as cheap to use as those holding 24 sections, besides being in smaller units for resale. Very often a family will buy a whole case of 12 sections when they will hesitate to buy a larger size. We offer for shipment from Medina

Twenty-three crates of 50 each, 11½-in. two-row cases for 12 sections, 4¼ x 1¾, with two or three inch glass, at \$4.50 per crate.

Eight crates of 50 each, 16-in two-row, and 32 crates of 15¼-in. two-row cases, for 16 4¼ x 1½ inch sections, with 2 and 3 inch glass. Price \$5.00 per crate.

Thirty-one crates of ten each for 16 4¼ x 1½ sections, at \$1.00 per crate.

Nine crates, 50 each, 9½-inch two-row cases, and 18 crates of 50 each 6¼-inch three-row cases with two and three inch glass for 12 4¼ x 1½ plain sections. Price \$4.50 per crate.

Eleven crates of ten each for 12 4¼ x 1½ plain sections, 3-in. glass. Price \$1.00 per crate.

Seven crates of 7½-inch four-row cases for 20 4 x 5 x 1¾ Danzenbaker sections, with 3-in. glass. Price \$6.50 per crate.

We also have a lot of similar cases at our branch offices, which we will close out at the same prices, and will fill your order from the point nearest you where they are available.

SPECIAL SALE!

Root's Goods Below Our Cost

Beekeepers will change their minds and use different kinds of supers all of a sudden. Our trade used, before section-supers, shipping cases, etc., while now nearly every beekeeper in our locality produces bulk comb honey, which, consequently, leaves us with a big stock of section supers on hand, which we are willing to sell very cheap just to dispose of them. They are all in the original packages, just as we received them from the factory, and there is absolutely nothing the matter with them, only we have hardly any more sale for them in our locality.

70 2 I-8.....	.37 each	60 2 P-8.....	.37 each
25 4 I-8.....	.50 each	100 4 I-10.....	.55 each
65 4 S-8.....	.50 each	80 2 I-10.....	.40 each
40 2 S-8.....	.37 each	35 4 S-10.....	.55 each
40 4 P-8.....	.50 each	75 2 S-10.....	.45 each

10,000 4 x 5 x $1\frac{3}{8}$ plain sections, 100 for .55; 300 for \$2.00; 1000 for \$3.70.

SHIPPING-CASES

	With glass, in lots of 10	100
150 24-lb. regular 4-row for $4\frac{1}{4}$ x $1\frac{1}{2}$ sections.....	\$1.30	\$12.50
150 12-lb. regular 3-row for $4\frac{1}{4}$ x $1\frac{7}{8}$ sections.....	.90	8.50
150 12-lb. regular 3-row for $4\frac{1}{4}$ x $1\frac{1}{2}$ sections.....	.85	8.00
100 24-lb. regular 4-row for 4 x 5 x $1\frac{3}{8}$ sections.....	1.20	11.50
150 12-lb. regular 3-row for 4 x 5 x $1\frac{3}{8}$ sections.....	.90	8.50

HONEY-CANS

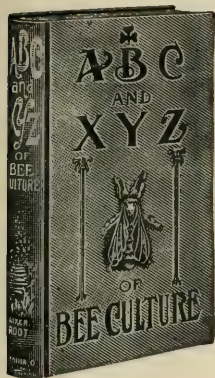
As in previous seasons, we have prepared a very large and complete stock of honey-cans in our warehouse, ready for immediate shipment to you. Our honey-cans this season are the product of the largest independent can-manufacturing company in the United States, and are warranted to be the best grade possible to procure. Every can and case is fully guaranteed to give absolute satisfaction. The boxes are of the very best material that can be obtained for packing honey-cans, being strong and substantial, and securely nailed with cement-coated nails.

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Toepperwein & Mayfield Co.

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Gleanings in Bee Culture

A semi-monthly magazine of 56 to 80 pages;
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Foreign postage, 60c extra; Canadian postage, 30c extra

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Taking every thing into consideration, we feel proud of our new A B C and X Y Z of Bee Culture. It is new from cover to cover. It is the work of experts in their respective lines. It is the largest and most comprehensive bee-book in any language in the world; and yet it is sold at the popular price of only \$2.00.

Starving America

By
Alfred W. McCann

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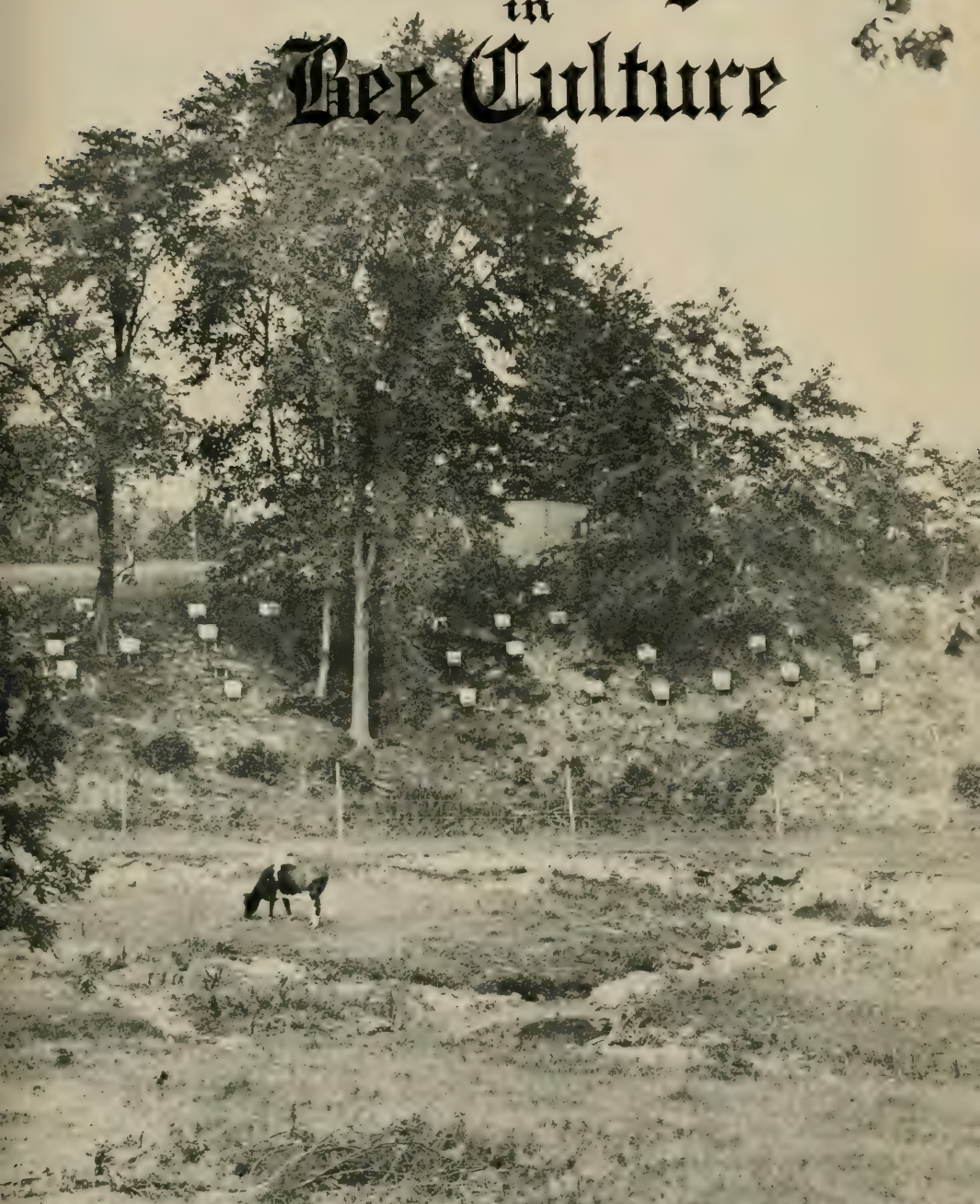
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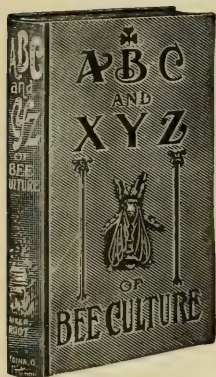
ST. LOUIS
AGRICULTURAL
COLLEGE

Cleanings in Bee Culture



VOL. XLI. SEPT. 1, 1913, NO. 17.

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached on all sides and evenly capped, except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb, 16 to 17; white extracted, 10 to 11. Beeswax, 30. Boston, Aug. 18. **BLAKE-LEE CO.**

INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cents in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cents, cash or trade.

Indianapolis, Aug. 16. **WALTER S. POUDER.**

KANSAS CITY.—With the long drouth broken, and cooler weather, the demand for honey, especially comb, is very much improved, and sales are equal to receipts. We quote No. 1 white comb, 24-section cases, \$3.50; No. 2 ditto, \$3.00 to \$3.25; No. 1 amber ditto, \$3.25; No. 2 dark and amber ditto, \$2.50 to \$3.00; white extracted, per lb., 8 to 8½. Beeswax brings 25 to 28.

C. C. CLEMONS PRODUCE CO.
Kansas City, Mo., Aug. 20.

ZANESVILLE.—Some honey is now arriving, but prices are arbitrary. Though there seems to be a good crop generally in the North Central States, the market remains firm, and there is little difficulty in securing prices approximating those of a year ago. We quote best grades of white comb at 18 to 19 wholesale; white extracted in 60-lb. cans, 9½ to 11, according to quantity. The local demand is a little better than ordinary—indeed, for the time being it is somewhat in excess of the supply. Producers are offered for beeswax 30 cts. cash, 32 in trade.

Zanesville, Aug. 16. **E. W. PEIRCE.**
Honey reports continued on page 5.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

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Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

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CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

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During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. Weber & Co.

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Cincinnati, Ohio

Gleanings in Bee Culture

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Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick

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Honey reports continued from page 2.

CINCINNATI.—We are receiving daily many shipments of honey, both comb and extracted. The market is quiet on both comb and extracted. No. 1 comb honey is selling from 14 to 16 cents, according to the quality and quantity purchased. White extracted honey is selling at 9 cents per pound in 60-lb. cans; larger lots, less. The above are our selling prices, not what we are paying. For nice yellow beeswax we will pay 30 cents delivered here.
Cincinnati, Aug. 19. C. H. W. WEBER.

DENVER.—New crop comb honey is coming in freely now, and quality is good. Owing to hot weather local demand is light. We are selling in a jobbing way at the following figures: No. 1 white, per case of 24 sections, \$3.15; choice, \$3.02 and No. 2, \$2.88. We quote white extracted at 9; light amber, 8; and amber strained at 6½ to 7½. We pay 26 cts. in cash and 28 in trade per lb. for clean, average yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Aug. 21.

CHICAGO.—Arrivals of honey up to this date have exceeded those of the ordinary season, and at present the market is not active. This may be attributed in part to the hot weather, and the fact that the peach season has not yet culminated. Prices are nominal, with the best grades of white comb bringing from 17 to 18, and the off grades from 1 to 3 cts. less. The best grades of extracted bring from 8 to 9, according to kind and quality, with the ambers ranging from 6½ to 7½. Beeswax is steady at from 30 to 32, according to color and cleanliness.

Chicago, Aug. 18. R. A. BURNETT & Co.

NEW YORK.—There is a good demand for comb honey, especially the better grades. Receipts are light as yet, owing to the season not having opened, and we do not expect any larger arrivals until about the first week in September. We quote No. 1 and fancy white at 15 to 16; No. 2 white, 14; light amber and amber, 12 to 13. There is no buckwheat comb honey on the market as yet, and no prices are established. Extracted is in fair demand, with abundant supply of all grades excepting California sage. We quote white clover at 8 to 9; white alfalfa at 7½ to 8; light amber alfalfa, 7; southern in barrels, 70 to 85 cts. per gallon, according to quality. Beeswax is steady at 31 to 32.

New York, Aug. 18. HILDRETH & SEGELKEN.

CINCINNATI.—The market for comb honey is very good, owing to the lower level of prices, and we are our store. Extracted honey is of slower sale than selling fancy comb honey at 15 to 16 cts. per lb. at was expected; but this is due to the big crop, and the beekeepers selling so much locally, which bars us temporarily. Nevertheless, this is a good thing; for when their supply is sold they will have created a good demand for this article. We are selling white-clover extracted honey in 60-lb. cans at 8 to 10 cts. per lb., while for amber honey in barrels we are getting 5½ to 7½. The above prices are according to quality and quantity purchased. For strictly choice bright yellow beeswax we are paying 30 cts. delivered here.

Cincinnati, Aug. 18. THE FRED W. MUTH CO.

ST. LOUIS.—There is little change since our last report. Southern honey in barrels and cans, also comb honey, has been coming in to this market quite freely for the past few weeks. There is no change in prices, and extracted honey is still bringing 6½ cents in barrels and 7 cents in five-gallon cans. Comb honey is nominal at 16 to 17 for fancy white; No. 2, 15; light amber, 12 to 14. By the case, fancy white comb honey will bring from \$3.50 to \$3.65; No. 2, \$3.25 to \$3.40; amber, \$2.50 to \$3.00, according to quality. Dark or broken honey is almost unsalable. Owing to the extremely hot weather our comb-honey market has been dull, and we do not expect any improvement until cooler weather sets in. Beeswax is in good demand at 31½ cts. for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO..
St. Louis, Mo., Aug. 18.

PEOPLE residing at a distance find it safe as well as convenient to forward deposits to this institution by mail.

ONE DOLLAR opens a Savings account bearing 4 per cent interest.

Checking accounts invited.

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Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50. Try me for rush order.

J. L. FAJEN, . STOVER, MISSOURI

LIVERPOOL.—About 200 barrels of Chilean have been sold at \$7.92 to \$8.16 per cwt. for pile X; \$7.20 to \$7.32 for pile 1, and \$6.24 for pile 3. There is a fair demand, and plenty of stock to meet it. Moderate sales of California white set at \$10.20. Sellers now ask \$10.80, which has checked the demand for the moment. A small balance of fine Jamaican white sold at \$9.36, leaving the market bare of this description. We have a very dull beeswax market; but little enquiry, and no sales made. For Chilean, \$37.02 to \$41.28 is quoted.

Liverpool, Aug. 15. TAYLOR & CO.

Kind Words from our Customers

I received your home-bred Italian queen in good condition. I wish to congratulate you on the stock you produce. She was the best queen I ever saw, and I have seen a good many. I expect, if the season is good, to make a record with her.

Mechanicsville, N. Y., June 21. W. G. HURLEY.

Mr. A. I. Root.—At the regular monthly business meeting and social of the Brotherhood of Trowbridge Memorial M. E. Church, this city, held Monday, July 7, numerous articles from Our Homes and Temperance were read from GLEANINGS, and it was unanimously voted we communicate with you, showing our appreciation for devoting so much space in your magazine to the cause of Christianity, and wish you divine inspiration in the continuance of your good works.

GEORGE H. HOSMER, Sec.
Worcester, Mass., July 10.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

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Forms close 10th and 25th of each month.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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RUSH ORDERS

BY MAIL.—Has your “forgettery” been working? And right this minute you need foundation or other items. See page 1 of our catalog, and it gives parcel-post rates on various articles.

BY EXPRESS.—Larger shipments than can go by mail we can rush out at once. Parcel-post and express orders receive our first attention.

BY FREIGHT.—Our rule is “ship same day the order is received,” and we break it only when absolutely necessary. Notice that Lansing is the railroad center of Michigan from which freight shipments can be delivered quickest.

And we fill all orders with Root's goods. Just remember that too. Send for catalog. Beeswax wanted.

M. H. HUNT & SON, LANSING, MICH.
OPPOSITE LAKE SHORE DEPOT.

THREE-BAND ITALIAN QUEENS

Now is the time to requeen your bees from a select lot of queens now ready for prompt delivery. Untested, \$1.00; warranted, \$1.25; tested, \$2.00. Special price will be named on quantity lots.

Earl M. Nichols, Lyonsville, Mass.

IF YOU USE

bee supplies you should have our catalog.

We sell the best No. 25 jar made.

Heavy cartons that protect honey.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.



Am now shipping Untested Queens from My

Celebrated Pedigreed Strain

My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLEY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States. Never had foul brood.

Swarthmore Apiaries,
Swarthmore, Pa.

The A B C of Bee Culture

The only cyclopedia on bees, 712 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$2.00 postpaid; money refunded if unsatisfactory.

THE A. I. ROOT CO., Medina, Ohio.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

“Griggs Saves Your Freight”

TOLEDO

“Griggs Saves Your Freight”

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

Root's Shipping Cases for Honey

We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. . . NEW 60-POUND CANS, two in a case, a specialty. . . FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.

“Griggs is always on the job.”



**"If Goods are wanted Quick,
send to Pouder."**

Bee Supplies!

A bounteous crop of finest quality honey has been secured, and, resulting from the needs of beekeepers in supplies, I have experienced the busiest season that I have ever known. The demand for the Root Goods has been excessive, and I have been very fortunate in keeping my stock complete and filling orders promptly. To do this my helpers and myself were required to apply ourselves from fifteen to eighteen hours per day. We were, of course, glad enough to do this, but I am going to offer some attractive discounts for supplies to be used next year if ordered early, and this will reduce the task of having so much to look after at the busy season. I believe the discounts will be a mutual benefit to all concerned. I am always glad to quote lowest estimates on any list of goods.

A feature on which I am now specializing is sending goods by parcel post. If you are within 150 miles of Indianapolis I can have your goods delivered to your home at a very moderate cost, if the package doesn't weigh over 20 pounds.

VEEDERSBURG, IND.

Walter S. Pouder, Indianapolis.

Dear Sir:—I wish to thank you for your prompt shipment of goods which I ordered a few days ago. They were brought to my house before I thought you had time to make up the order, and you well deserve your motto, "If goods are wanted quick, send to Pouder." I inclose another order and will be glad if you will send as quick.

Yours truly, JAMES A. LYNCH.

Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

SOME EASONABLE UGGESTIONS.

Bee-escapes,
Honey-extractors,
Uncapping-knives,
Shipping-cases,
Glass Jars,
Honey Labels,
Veils, Smokers,

Bee-brushes,
Wax-presses,
Hive-tools,
Tin Cans,
Cartons,
Bee Books,
Gloves.

You are doubtless in need of and ready to order one or more of these items. You want ROOT QUALITY and PEIRCE SERVICE of course. Why not include with this order the hives, supers, sections, foundation, etc., you will need for next season? Prices are lower now than they will be in the spring. Then it will be a great satisfaction to have every thing ready for immediate use when needed, and so be immune from the vexation and loss that may result from unavoidable delays during the rush season.

The flooded stock is pretty nearly closed out. A few odds and ends remain. If you can use any slightly damaged goods at very low prices, write for list.

Look the catalog over and make-up your order now. Do not hesitate to order even any small article needed, as the lower parcel-post rates now in effect insure delivery at trifling expense.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

PATENTS

25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLachlen Building, Corner
Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts

Patent Counsel of
The A. I. Root Co.

Boston is the Shipping Center of New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

New England Beekeepers

Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR

"FALCONER"

Write for discounts--we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

. . . ROOT'S . . .

POWER HONEY - EXTRACTORS

Our new catalog is full of information about these labor-saving machines. With the difficulty of getting competent help, the power extractors are being sold largely in this and foreign countries, and the present demand is far greater than ever before. Read what a California producer says in a letter to a disinterested party, which we are permitted to see and publish:

GENTLEMEN:—I should like to say a few words in favor of the ball-bearing Root Automatic extractor, as I believe it is as near perfection as can be. This machine runs so easy that a few turns to get it up to speed is all that is necessary; and the men, while using the No. 17, which I formerly had, could average only 1000 lbs. per day, while with this machine they can average 2000 lbs. with but one additional man. No apiary can afford to be without one of these machines.

I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, and financially to the honey-producers' interests.

Elk Grove, Cal.

B. B. HOGABOOM.

For full particulars see our new catalog

THE A. I. ROOT COMPANY, MEDINA, OHIO

New York, 139-141 Franklin St.

Chicago, 213-231 Institute Place

Philadelphia, 8-10 Vine St.

Des Moines, 565 W. 7th St.

St. Paul, 1024 Mississippi St.

Syracuse, 1631 Genesee St.

Washington, 1100 Maryland Ave., S. W.

Mechanic Falls, Maine

Distributing Depots in many large centers

Shipping Season is Here

Are you prepared for it? Be forehanded, and have your Shipping Cases all ready. . . We carry a large line of these and other goods. Our catalog for 1913 will be sent on request.

Sections and Foundation

A half million sections on hand, and a ton or more foundation ready for instant shipment.

THE A. I. ROOT CO., SYRACUSE, N. Y.

Send for Our Prices on

BEESWAX

We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

Dadant's Foundation

Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

DADANT & SONS
HAMILTON, ILLINOIS.

**DETROIT
CLEVELAND
BUFFALO
NIAGARA
FALLS**



**TOLEDO
PORT HURON
GODERICH
ALPENA
ST. IGNACE**

**THE COAST LINE TO
MACKINAC**

THE CHARMS OF OUR SUMMER SEAS

Spend your vacation on the Great Lakes, the most economical and enjoyable outing in America

Where You Can Go No matter what point you want to go, use D. & C. Line Steamers operating to all important ports.

Daily service between Detroit and Buffalo, May 1st to November 1st. City of Detroit III and City of Cleveland III, two of the largest side wheel steamers in the world, on this division June 10th to September 10th. Daily service between Detroit and Cleveland April 15th to December 1st. During July and August two boats out of Detroit and Cleveland every Saturday and Sunday night.

Four trips weekly between Toledo, Detroit, Mackinac Island and way ports. T Day Stopover allowed at Alpena either direction on tourist tickets without additional cost. Daily service between Toledo, Cleveland and Put-in-Bay.

Special Steamer Cleveland to Mackinac Island, two trips weekly, June 15th to September 10th stopping only at Detroit every trip and Goderich, Ont., every Monday up-bound and Saturday down-bound.

Special Day Trips between Detroit and Cleveland, During July and August Tuesday, Wednesday, Thursday and Saturday out of Detroit; Monday, Wednesday, Thursday and Friday out of Cleveland.

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.

Address: L. G. Lewis, G. P. A., Detroit, Mich.

Philip H. McMillan, Pres.

A. A. Schantz, Vice-Pres. and Gen'l Mgr.



**Detroit & Cleveland
Navigation Company**



GET TOP NOTCH PRICES BY USING LEWIS SECTIONS FOR YOUR MONEY AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributer. G. B. Lewis Company, Watertown, Wis.

Why Pay the Dealer to Select Your Range?



YOU know what you want better than he does. Don't depend on his taste. Get the Kalamazoo book of 450 stoves and make your own choice.

Pay Cash or Take Your Time

—30 Days' FREE Trial—Save \$5 to \$40!

In 250,000 delighted homes Kalamazoo ranges are praised 3 times a day. They make cooking a pleasure and results a pride.

Write for Catalog No. 416

KALAMAZOO STOVE CO., Kalamazoo, Mich.

We make a full line of Stoves, Ranges, Gas Stoves and Furnaces.

We have three catalogues—please ask for the one you want.

"A Kalamazoo Direct to You" And Gas Stoves Too

**Modern Methods of Harvesting
Grading and Packing Apples**

FRANK A. COOK, CORVALLIS, OREGON

Pack Your Apples Properly

You should have a copy of "Modern Methods of Harvesting, Grading and Packing Apples"—the most practical book on handling the apple crop. Tells the new and better methods—shows how you can get more profit. Write today for a copy of this book—sent free—also our booklet, "Scalecide, the Tree Saver." Tells why it pays to spray—when to spray with "Scalecide", etc.

Our Service Department

Everything here in right up-to-the-minute appliances for the fruit grower and trucker at money-saving prices. Tell us your need.

**B. G. PRATT CO., Dept. 6,
50 Church St., N. Y.**

How to Keep Bees

By
Anna Botsford Comstock

This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood.

Price \$1.10 postpaid by

The A. I. Root Co.
Medina, Ohio

BEESWAX WANTED!

Recent demand for comb foundation has been good, and our stock of beeswax is running low. We offer for good average quality and prompt shipment 30 cts. per lb. cash, or 32 in trade, delivered at Medina. Shipments from the Pacific coast should be in barrels or boxes. From other Western points, pack in double bags to get the most favorable rate. Be sure to mark the shipment so it can be identified when it arrives, and send us a shipping receipt with a statement of gross, tare, and net weight shipped. This is important as it gives us something to check so as to determine whether any has been lost in transit.

The A. I. Root Company
Medina, Ohio



Ruby FREE

To introduce our **Genuine Maztec Gem** (U. S. Letters Patent)—the only satisfactory substitute for the diamond that stands all tests and has permanent dazzling brilliancy, we make this special offer:

If you will mention this advertisement and send us 5 two-cent stamps for our beautiful Art Catalog "The Story of the Maztec Gem," we will send you free with catalog a genuine uncut Navajo Ruby (sells at 50c.) bought by us from Navajo Indians, together with a cost-price offer for cutting and mounting.

Write today: **FRANCIS E. LESTER COMPANY**
Dept. 62G, Mesilla Park, N. Mex.



4 BUGGY WHEELS FREIGHT PAID \$8.75

With Rubber Tires, \$18.45. Your Wheels Rubbered, \$10.30. I make wheels $\frac{3}{4}$ to 4 in. tread. Tops, \$6.50. Shafts, \$2.10; Repair Wheels, \$5.95; Axles \$2.25; Wag- on Umbrella free. Buy direct. Ask for Catalog 47.

SPLIT HICKORY WHEEL CO., 547 E 84, Cincinnati, Ohio.

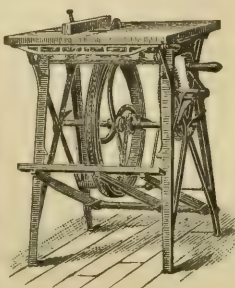
BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.,
545 Ruby St.,
ROCKFORD, ILLINOIS.



Kerosene Engine

The powerful SANDOW Stationary Engine runs on kerosene or gasoline without change of equipment. Starts without cranking—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—5 yr. ironclad guarantee—15-day money-back trial. Sizes, 2 to 20 H.P. Send a postal today for free catalog. **DETROIT MOTOR CAR SUPPLY CO., 72 Canton Ave., Detroit, Mich.**

This Suit Yours

To learn how you can have a swell tailored suit without cost (we pay express,) make \$10.00 every day; to learn what beautiful tailoring really is; to offer styles that everybody goes wild about; to get all your own clothes easy, do this now—write us and say "Send me your New Wonderful Tailoring Offer," and you will receive a beautiful set of samples and styles to pick from, and an offer so good you can hardly believe it. No money or experience needed. Your spare time will do. Write now—sure. Address

BANNER TAILORING CO., Dept. 457 CHICAGO



HONEY COMB AND EXTRACTED

We buy and sell, carlots or less. Honey producers of the Pacific States get in touch with us. . .

LEUTZINGER & LANE

420 to 424 Front Street, San Francisco, Cal.

**SUPERIOR GOLDEN QUEENS
FOR HONEY**

Beauty, color, and gentleness, and non-swarming.
Untested, \$1.00 each; six, \$5.00. Tested, \$2.00; select
tested, \$3.00. Breeders from \$5.00 to \$20.00.
See what this customer says:

Mr. J. B. BROCKWELL.—I want to say something in behalf of the nice Golden Italian queens I received from you last year and this year. The ones that I ordered from you last year have done better than any bees that I have received from any one else; besides, they have produced nice golden bees, and the queens are the most prolific I have ever seen, and are superior to any other bees I have as honey-gatherers. The ones that I bought from you last year, none have attempted to swarm, and have made twice as much section honey as any other bees that I have in my apiary.

My bee friends are perfectly enthused over the appearance and the gentleness of these bees, as you see from the numerous orders which we are sending you.

July 25, 1913. J. W. BLACK.
J. B. BROCKWELL, MALVERN HILL, VA.

**Miller's Strain of Red-clover ITALIAN QUEENS
By Return Mail or order returned**

Bred from superior breeders for business; gentle; no better hustlers; bees roll honey in; three-banded; **Northern-bred**; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored strains. Untested, 75 cts.; six, \$4.00; dozen, \$7.50. Select untested, \$1.00; six, \$5.00; dozen, \$9.00. Satisfaction guaranteed.

Isaac F. Miller, a queen specialist and breeder for sixteen years, previously of Brookville, Rt. 2, Reynoldsville, and lately of Oil City, Rt. 2, Pa., is agent and breeder for E. L. Miller. Send all orders to
I. F. MILLER, Rt. 2, Brookville, Pa.

QUEENS--3-band Italians

75 cts. each, \$4.25 for 6, \$8.00 per doz.
If these queens fail to please your money will be returned.

L. H. ROBEY
WORTHINGTON, WEST VIRGINIA

BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street

ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, 75 cts.; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c.
E. E. MOTT, Glenwood, Mich.

**QUEENS
AND BEES**

An improved superior strain of Italians is what **QUIRIN** RAISES. Our stock is Northern bred and hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis., and July 20th (of same year) he wrote us saying they did just splendid, as at that date they had already filled their supers, and that he would have to extract them. We have files of similar testimonials.

Prices for rest of season	1	6	12
Select queens	\$ 75	\$ 4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden breeders	5 00		
Two-comb nuclei, no queen ..	2 25	12 00	22 00
Three-comb nuclei, no queen ..	3 25	18 00	32 00
Full colonies on 8-frames	5 00	25 00	
One pound bees, no queen ...	1 50	8 00	
Half pound bees, no queen ...	1 00	5 00	

Add price of queen wanted with bees. Bees by the pound, nuclei, and colonies; if wanted before June 1, add 25 per cent. **QUEENS NOW READY.** Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO

**Queens of MOORE'S
STRAIN of ITALIANS**

PRODUCE WORKERS
that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.
Select untested, \$1.25; six, \$6.00; 12, \$11.00.
Safe arrival and satisfaction guaranteed.
Circular free.

J. P. MOORE,
Queen-breeder. Route 1, Morgan, Ky.

SPECIAL NOTICE!

NOW is the Time to Requeen Your Bees

We have some very choice red-clover Italian queens that we will send by return mail. Tested, \$1.00; six, \$5.00. Untested, 75c each; six, \$4.00. We will guarantee every queen to give satisfaction.

Fred Leininger & Son, Delphos, Ohio

**LEWIS HIVES ARE BUILT LIKE FURNITURE
ARE PERFECT IN ALL RESPECTS**

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

PUBLICATIONS ON BEE CULTURE

(Please use coupon below, checking the numbers of items wanted.)

The pamphlets and booklets listed below are of more than ordinary interest.

- 1 MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 THE BEEKEEPER AND FRUIT-GROWER. A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honeybees in close proximity to their blossoming fruit. Free.
- 4 CATALOG OF BEEKEEPERS' SUPPLIES. Our complete catalog will be mailed free to any address on request.
- 7 SPRING MANAGEMENT OF BEES. A 14-page booklet detailing the experiences of some successful beekeepers, and giving instructions on this oftentimes perplexing matter. Price 10 cts.
- 8 HABITS OF THE HONEYBEE. By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.
- 9 HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 THE A B C OF BEE CULTURE. A complete encyclopedia of bees, of 712 pages, fully illustrated, \$2.00 postpaid; half leather \$2.75.
- 11 GLEANINGS IN BEE CULTURE. A 64-page illustrated semi-monthly magazine—the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.
- 12 BACK-YARD BEEKEEPING. Six interesting lessons written in readable newspaper style. Many facts to encourage the "City Bound" man or woman with the back-to-the-land longing. Free.
- 13 THE BUCKEYE BEEHIVE, or the management of bees in double-walled hives. Of special interest to the amateur beekeeper. The most complete booklet we publish for free distribution. Illustrated throughout; 84 pages.
- 14 ADVANCED BEE CULTURE. A beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that its many fine illustrations are unusually clear in every detail. Bound in attractive and substantial cloth; \$1.00 per copy, postpaid.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted, and adding your signature, and remittance, if required.

CUT COUPON HERE

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose

\$.....to cover the cost.

1	2	4	7	8	9	10	11	12	13	14
---	---	---	---	---	---	----	----	----	----	----

Name

Street Address or R. F. D.

Town

B. C. State

FRENCH'S POULTRY MUSTARD

Used and Recommended by
the Most Prominent Judges
and Breeders in the United
States.

The London *Feathered World* says,
"Poultry Mustard not only increases
the egg yield but improves fertility."

Send us your name and address and we will send you, free of charge, a copy of a pamphlet edited by Ralph Allen, of Herts, England, the conductor of the original English experiments with mustard. The book contains a full account of these experiments, together with testimonials from some of the most prominent American users of French's Poultry Mustard.

The time to begin the use of French's Poultry Mustard is at the very beginning of the moulting season. At this time its results are most valuable.

Write Now to

The R. T. French Company

Mustard Makers

ROCHESTER, N. Y., Dept. D.

CONTAINERS

... FOR ...

**Comb and
Extracted Honey**

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, 5 gallon capacity.

Get full information,
prices, and samples.

The A. I. Root Company

Medina, Ohio

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—Well-ripened honey, clover blend. CHAS. ZWEILY, Lemont, Ill.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—White-clover extracted honey in 60-lb. cans. HENRY HETTEL, Marine, Ill.

FOR SALE.—Light and amber extracted honey in new 60-lb. cans. Sample, 5 cts. J. WARREN SHERMAN, Sag Harbor, N. Y.

FOR SALE.—Finest quality clover and clover-basswood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Five whole and two half-barrels white-clover honey, well ripened on the hive. All in new cypress cooperage. DR. GEO. BIENER Port Allen, La.

FOR SALE.—No. 1 white comb, \$3.50 per case; No. 2, \$3.00, 24 sections to case, six cases to carrier, clover extracted, two 60-lb. cans to case, 9 cts. QUINN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Carload of comb and extracted honey (principally comb), in dovetailed cases. Colorado grading-rules. Write for prices. HOUSE & DICKINSON, Corinne, Utah.

Fine ripe clover and basswood honey mixed. A fine blend in 60-lb. square cans, two cans to case. Price 9 cts. per lb.; sample, 5 cts. C. A. BUNCH, Lakeville, St. Joseph Co., Ind.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

WANTED.—Honey in car lots. If you have or expect to have a car of honey, or if a car can be had in your vicinity, write to us and state your prices, delivered on car at your station. OGDEN BEE AND HONEY CO., Ogden, Utah.

8000 lbs. new crop of hulled yellow-sweet-clover seed (biennial); 10 lbs. by mail, prepaid, \$3.10; 50 to 100 lbs., 20 cts. per lb.; also 100 lbs. hulled white, \$28.00; alfalfa seed, 15 cts. per lb. R. L. SNODGRASS, Augusta, Kan.

RASPBERRY HONEY for sale.—This honey was left with the bees until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. It is put up in new 60-lb. tin cans. The price is \$6.00 a can. Sample by mail, 10 cts. The 10 cts. may be applied on an order for honey. ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—A barrel of amber honey. Quote prices delivered, F.O.B., Cameron, Tex. FRANK McLERRAN.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—5000 to 10,000 lbs. comb honey; different grades; price must be right. Address C. M. H., care A. I. Root Co., Medina, Ohio.

We will pay the highest cash price for thoroughly ripened extracted honey. Write us, stating quantity and quantity, with prices F. O. B. your station. SPENCER APIARIES, Nordhoff, Cal.

WANTS AND EXCHANGES

WANTED.—A cineograph and printing outfit. GEO. E. KRAMER, Valencia, Pa.

WANTED.—200 colonies of Italian bees. AUGUST KNEMEYER, Ft. Collins, Colo.

Have many goods and books. Want honey, nuts, antiques, all kinds, field glass, microscope, mining stocks. BOX 404, Monticello, N. Y. 63907.

WANTED.—To exchange a fine surveyor's compass, with telescope sight, for a Barnes foot-power saw. O. BROMFIELD, Asheville, N. C.

WANTED.—To exchange 18 volumes of GLEANINGS, nearly all complete, for offers, exchange, or cash. C. A. GRAVES, Shelby, Ohio.

I will exchange one quart of dasheens free by return mail, or when wanted, for every Italian queen received until June next. OLA COE APIARY, Las Indias, Isle of Pines, W. I.

WANTED.—At close of the queen-rearing season your surplus queens, Italians; or if you are queenrearing, any under two years. State lowest cash price, safe delivery and purity guaranteed, in quantity. OLA COE APIARY, Las Indias, Isle of Pines, W. I.

Owing to ill health I will sell my interest in the Rocky Mountain Bee Co., amounting to nearly one-fourth, at a great bargain; or would trade for satisfactory property in lower altitude. This is a profitable investment for a good beekeeper. W. HICKOX, Forsyth, Mont.

REAL ESTATE

Virginia apple land will make you independent. \$15.00 per acre and up. Easy payments. Buys No. 1 fruit and farming land. Write at once for our illustrated booklet, and low excursion rates. F. H. LABAUME, Agr'l Agent Norfolk & Western Ry., Room 73, Roanoke, Va.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. THOS. LITZ, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

In 1912 and '13 our bees wintered perfectly in the Eureka concrete case. Write for circular and learn about them. B. T. BOSSERMAN, Williamstown, O.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

White-sweet-clover seed (unhulled), new crop, 50 to 100 pound lots, 12 cts. per pound. Less quantities, 15 cts. E. C. DAVIS, 1836 West 11th St., Oklahoma City, Okla.

FOR SALE.—One hand-operated paper-cutter and one check-protector, a device for protecting commercial paper. The last named will be useful in business houses, and the first mentioned will be of use in a small printing establishment. I will sell either at far below cost. Correspondence solicited. MRS. W. Z. HUTCHINSON, Flint, Mich.

BEES AND QUEENS

FOR SALE.—Italian bees. For prices address
ALVIN BUFF, Frost, Ohio.

Red-clover Italian queens, untested, 75 cts.; tested, \$1.25; breeders, \$5.00. J. H. GIBBS, Berlin, Md.

Golden Italian queens, \$1.00 each; six for \$5.00. Warranted. J. B. CASE, Port Orange, Fla.

A limited number of leather-colored Italian queens. Send for price list. GEO. B. HOWE, Black River, N. Y.

No more rush orders for queens till Sept. 20. Booked full till then.
A. J. SEAVEY, Rt. 2, Farmington, Maine.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALRATH, Antioch, Cal.

FOR SALE.—Italian queens, untested, 75 cts.; 6 for \$4.00; 12, \$7.00. I can fill orders promptly.
E. A. SIMMONS, Greenville, Ala.

Fine Italian queens, three-banded, prolific, hardy, gentle. Untested, 75 cts. each; 6 for \$4.25; dozen, \$8.00.
J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

Hardy northern-reared queens of Moore's strain of Italians, ready June 15. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. P. B. RAMER, Harmony, Minn.

I will sell untested Italian queens at 60 cts. each, \$5.00 per dozen; no disease. Safe arrival guaranteed.
EDWARD O. MESERVEY, Ventura, Cal.

Goldens that are golden, pure Italian queens, \$1.00 up. Send for booklet, but do not send rush orders.
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

The best of untested queens, 75 cts. each; \$8.00 per dozen. Bees by the pound and nuclei for sale. Ask for prices. WM. ATCHLEY, Beeville, Bee Co., Tex.

Virginia three-banded Italian queens, untested, 65 cts.; tested, 85 cts. All dead queens replaced free. Ready May 15.
R. CLICK, Box 16, Rt. 2, Mt. Jackson, Va.

FOR SALE.—Golden Italian queens, tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00. I am now filling all orders by return mail.
D. T. GASTER, Rt. 2, Randleman, N. C.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address
DEROY TAYLOR, Box G, Lyons, N. Y.

Fine Italian queens, reared by best-known methods of a \$10 Doolittle breeder and select imported stock. Untested, 75 cts. each; 6 for \$4.00, by return mail.
J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—New England Italian queens; untested, 75 cts.; tested, \$1.00; breeder, one year old, \$3.00 to \$5.00; 27 years' experience; foul brood unknown. E. S. WATSON, Rt. 2, Madison, Maine.

FOR SALE.—After June 20, fine Golden Italian queens, 75 cts. each; 6 for \$4.00; few choice breeders at \$3.00 each. Cash with order. Good honey-gatherers. EDWARD REDDOUT, box 43, Lysander, N. Y.

Choice virgins, 40 cts. each; 3 for \$1.00; untested, 60 cts.; tested, \$1.25; breeders, \$2.50; Italian or Carniolan.
STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

FOR SALE.—My entire apiary of 175 colonies of Italian bees with complete outfit for running the same for comb honey; also International Harvester auto truck. Selling on account of sickness.
J. S. SHATTES, Fort Lupton, Col.

FOR SALE.—Pure golden Italian queens. Day-old virgins, 50 cts.; untested, 75 cts.; tested, \$1.00.
S. H. RICKARD, 506 Machesney Bldg., Pittsburgh, Pa.

FOR SALE.—Italian queens from best strain. Pure mating guaranteed. Untested, 50 cts. each.
D. E. MEYER, Lowell, Ark.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON,
3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Malvern Hill, Va.

Goldens and three-band Italian queens from the Golden State. Queens by return mail No disease. One, 75 cts.; 6 for \$4.00; \$8.00 for 12. Special prices in large quantities. LEMUEL J. DUNN,
14 Garfield Ave., Rt. 6, San Jose, Cal.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

Famous North Carolina bred Italian queens for sale. Plenty of fine queens on hand; good as the best. Up with obligations. Send in your orders. See June and July advertisements GLEANINGS for 1913. Untested, one, 75 cts.; 50, \$25; 25, \$13. Select untested, 50, \$30; 25, \$14; one, 90 cts. Circular free.
H. B. MURRAY, Liberty, N. C.

Queens by return mail. Three-banded untested Italian queens, 60 cts. for 1; \$6.60 for 12, and \$50 for 100. Good as can be had at any price. No disease. Satisfaction guaranteed. If any untested queen I have sent out has proved to be impurely mated, I am willing to replace her free.
W. D. ACHORD, Fitzpatrick, Ala.

Italian queens. Gentle three-banded stock, bred for honey-gathering ability. Good red-clover workers and good winterers. Prompt service, fair prices, and no disease. Untested queen, 75 cts. each; 6 for \$4.25; 12 for \$8.00; 50 for \$32.00. Safe arrival in the U. S. or Canada, and guaranteed to please.
H. C. SHORT, Winchester, Ohio.

FOR SALE.—Guaranteed purely mated three-banded Italian queens. I recommend four points—gentle, prolific, extra good honey-makers, good winterers. J. E. Hand strain. State inspector's certificate. Queens by return mail or your money back. Select untested, one, 80 cts.; 6, \$4; 12, \$7; 25, \$13.
J. M. GINGERICH, Rt. 3, Arthur, Ill.

Queens from Georgia apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested, \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb packed any size to suit customer. Prices and samples sent free.
JOHN W. CASH, Bogart, Ga.

Three-banded Italian queens and bees. Untested queens, 75 cts. each; six, \$4.25; twelve, \$8.00; tested, \$1.25 each; six, \$7.00; twelve, \$12.00. For select queens, add 25 cts. each to the above prices. Nuclei without queens, one-frame, \$1.50; two-frame, \$2.50; three-frame, \$3.00; 1 lb. bees, \$1.50; ½ lb. bees, \$1.00. Add price of queen wanted with bees.
ROBT B. SPICER, Wharton, N. J.

Thanking my many friends for their liberal patronage, I will extend the present prices of my famous Moore strain of three-banded Italian queens to Oct. 1, and then, on account of other business, I shall be obliged to stop for this season. Do not send me any orders for queens after that date. Prices: Untested, 75 cts.; 10 for \$6.50; tested, 90 cts.; 10 for \$7.50. Not less than 6 queens to one address.
H. D. MURRAY, Mathis, Texas.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

Golden Seal.—Cuttings, plants, and seed-bearing roots for sale. Ask for prices
J. A. HONABARGER, Warsaw, Ohio.

FOR SALE.—1912 crop ginseng seed. Ten thousand lots or more, 50 cts. per 1000.
S. PITTS, Stronghurst, Ill.

FOR SALE.—Collie pups (Reg. A.K.C.), by Ch. Ravenwood's Reward, with very best blood lines. Send 4 cts. in stamps for pedigree and price.
R. C. R., Box 95, Clyde, Ohio.

Single-comb White Leghorns.—\$1.00 each; pullets and cockerels, yearlings and cocks; shipped anywhere. As many as desired. Write for catalog.
WOODWORTH FARM, Wilton, Conn.

Have nice ripe tomatoes in November from your late green crop. Ripen without sunshine. Let me instruct you how. Address, with stamps, 520 Atwood St., Longmont, Colo.

HELP WANTED

WANTED.—Experienced man in apiaries for rest of season.
F. B. CAVANAGH, Hebron, Ind.

WANTED.—Man to take charge of a small apiary on shares.
U. A. VINCENT, Mars Bluff, S. C.

BEEKEEPERS' DIRECTORY

If you need queens by return mail, send to
J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business: June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

A. I. ROOT

THE WOMEN OF PARIS, ETC.

The following letter, just at hand, explains itself:

Our attention has been called to a letter printed by you in your August 1st number, on page 556, under the heading, "The Women of France, a Plea in their Behalf," in which appears the following sentence: "Cook's Agency pours by the carload its tourists into the small and dirty theatres of Montmartre." This reference to our business is false, and, no doubt, libelous, and is calculated to do us considerable injury. We feel that it was inadvertently published by you, as you would hardly allow any one to attack a firm of our reputation and standing, and we must ask you to publish a retraction and apology in your next issue.

THOS. COOK & SON,
per George S. Harrison, Mgr.

New York, Aug. 23.

Permit me to add that I printed the letter sent us, just as it came, without any thought of endorsing it, and I humbly beg pardon of Cook's Agency or of anybody else who has been misrepresented by said letter.

ONE OF OUR FLORIDA NEIGHBORS TELLS OF
HIS SUMMER TRIP IN THE NORTH.

The letter below was evidently not intended for print; but as it gives glimpses of several things that will be of interest to our readers I have decided to give it entire.

Dear Friends:—We have now been home a few days, and I am trying to gather up the broken threads again after nine weeks' absence. We had a splendid trip, every minute of it with pleasure and profit intermingled; but the one day with you stands out as perhaps the most enjoyable one of the whole vacation. To say that we will not soon forget the very great kindness of all Rootville is putting it very mildly. Indeed, we were embarrassed with the cordiality of your greeting; and for it to come from people who a short time ago were strangers to us makes it all the more appreciated.

Every thing that you showed us was interesting—so interesting that I have regretted many times that we could not have remained a day or two more with you. With all of your wonderful things to show, and your kindness to visitors, I can easily see how Medina is the Mecca of beekeepers the world over. While your plant is interesting to me in every detail, and shows thought and skill of a very high order, still the Root family itself, with all of its ramifications, its kindly feeling and love and harmony, is to me the most interesting thing. I wonder if there is another institution on earth run in the same way; and if it could be if its founder had not planted it and developed it in faith and love. It will be to me an inspiration to better things for many days.

We found a good deal of hot weather in July. Chicago, which is generally pretty cool, was sizzling hot when we were there. So was it out in Illinois at my old home, and in Southern Indiana where we visited. In fact, it was so hot in several places that we were greatly relieved to get to Florida, as it has been very cool and pleasant here ever since we arrived home.

Michigan and Northern Illinois had good rains, and the crops were excellent; but south of Indianapolis to Chattanooga it was very dry and the crops poor. I suppose that this will affect the supply of honey; but it ought to be correspondingly large further north, for the white and sweet clover were luxuriant everywhere. The Florida honey crop is rather light.

Mr. Root's dasheen is doing finely, and is from two to four feet high. Mr. Harrison's is higher, and Mr. Ault's is, some of it, over six feet. I shall be very much interested in seeing what tubers are developed, and what we think of them. The stuff can surely be grown here very easily, and at a time of the year when our land would otherwise be idle. I expect to

begin planting strawberries to-day. My celery-beds are fine, and prospects are good.
 Bradentown, Fla., Aug. 6. E. B. ROOD.

DASHEENS, SOIL FOR, ETC.

The letter below, from friend Reasoner, of the Royal Palm Nurseries, gives us some good suggestions in regard to using suitable land for dasheens. Mr. Reasoner is authority on growing almost any plant found on the face of the earth.

Dear Mr. Root:—Yesterday after dinner at Mr. Root's he and I walked over to see your dasheens. They are looking well, but not so well as Mr. Ault's are. His are 6 feet high, and immense. They are on just such wet rich soil as they like. Yours lack manure on the upper or drier ground, and apparently a little cultivation. These plants grow best on peaty (mucky) soil. You have a bauhinia north of the house with a number of seed-pods hanging on, yet quite green. I should like to secure these pods when ripe. We are having delightful showers every day. That has continued for about three weeks now, being a late rainy season. It may continue until past our usual time, possibly into November.
 Oneco, Fla., Aug. 18. E. N. REASONER.

GARDENING FOR "PROFIT."

On page 578, Aug. 15, I gave you a picture of the dasheens, and I told you something about how I prepared the ground for high-pressure gardening. Well, just now, Aug. 20, they are pretty nearly as high as my head, and they cover the ground with their great wide leaves. The sweet corn I spoke of then is now, some of it, 12 feet high, and the ears are the largest and finest I ever saw. On most of the stalks there are two large ears. By the way, each of our five children has a garden—at least they *try* to have a garden, and pay out money enough, as a rule, to hired help to have nice good gardens. Now, in our several departments we have some excellent men for making gardens or almost any thing else. But in the spring time, when it is time to start gardening, these expert men are busy. Taking one out of his accustomed place in the factory or in the lumber-yard might result in interrupting business, and, may be, delaying an important order; so the good folks at Rootville do what they can themselves, with the assistance of a tramp who occasionally comes along. Quite a little of our gardening is done by the women-folks; but the average hired girl, at least in our neighborhood, does not take kindly to gardening during these latter days. Well, occasionally "grandpa" looks through their gardens and gives advice. I usually tell them when there is danger of a freeze, or when they need not worry about frost. Some of these younger folks, no doubt, think they know as much about gardening as grandpa does.

Well, this summer when I was planning to grow dasheens and other stuff, I thought I would give the younger ones an object-

lesson just for the fun of it. I have told you how I had my quarter-acre thoroughly underdrained, plenty of manure plowed under, and cultivated at just the right time, etc. I did all the hoeing myself.

There are three ways in which I get inspiration for writing these Home papers: First, plenty of sleep; second, good nourishing food without any "frill." What I mean by "frill" is cake, pie, and ice-cream after I have had a good square meal already. The third way I get inspiration is to get hold of that light hoe that is bright and clean and go out and hoe in said garden until the perspiration drops from my nose. And I believe this last method of getting inspiration is the best one of all, but they will go pretty well together. Now, then, not only are the dasheens doing wonders, but the sweet corn just back of them is astonishing. Of course, Mrs. Root and I can not use more than a few ears a day, even if we live on green corn, so I am enjoying the fun of carrying samples around to the neighbors. Years ago my friend Peter Henderson put out a book called "Gardening for Profit." That book has helped the world. The "profit" the author had in mind was the dollars and cents you get for your crop. But the "profit" I have in mind just now is the pleasant feeling that always comes from dividing with your neighbors. Jesus once said, "It is more blessed to give than to receive;" and I want to suggest to a lot of old men—especially those who no longer need to toil for their daily bread—that these elderly people, especially if they are grandpas, devote their time and remaining strength toward growing stuff to *give away*. If you have not tried it, you can not imagine how a little gift like a dozen ears of corn, a little bit before anybody else has any, will bring about kind and neighborly feelings in almost any neighborhood. Suppose you have a neighbor (and I do hope it is only a *suppose*) who is always looking out for the best end of a bargain. If you know he has not a very good garden, and you can surprise him by something real nice, such as I have mentioned, you can not think, unless you have tried it, how much it will do toward softening his hard and suspicious disposition. Of course, our corn, string beans, peas, and early tomatoes, are given mostly to the children and grandchildren; but even there it tends to keep pleasant feelings all around. You need not go to the newspapers to be reminded that there are sometimes quarrels and jangles among the different members of a family. I once heard of a father who would tell his own children that he did not want them in the future to

set foot on his premises. I suppose that when such things occur Satan gets into the heart of both parents and children; but, oh how we ought to work and pray, and bear and forbear, rather than that our dying hours may be disturbed by any such memory of family differences! Now, then, making a nice garden, and getting things a little ahead of anybody else, so that you may sell your stuff for a good big price, is "laying up treasures on earth;" but having a beautiful garden, and carrying it forward in such a way that you may in your declining years enjoy the privilege of giving away what God has given you in the way of extra-nice fruits and vegetables, is "laying up treasures in heaven where moth and rust doth not corrupt, and where thieves do not break through nor steal."

In speaking of underdraining, heavy manuring, and careful and thorough cultivation, I failed to mention one other factor. Just now we have an abundance of water from the city waterworks that costs only 25 cents per 1000 gallons. Just lately; while we have been having a severe drouth, I have been letting water run down the furrows between the dasheen plants; and in order to get it there, I had to run between the corn and potatoes; and once when I forgot to turn it off it went down through my tomatoes, cantaloupes, and Hubbard squashes; and it was a magnificent object-lesson for me to see the stuff that had just begun to suffer from our severe drouth (right now in the middle of August) just start up and jump. Of course I used my hoe when the ground had dried off sufficiently; and I was surprised to find that the water had got over, by capillary attraction, five to ten feet on each side of the furrow where I soaked up the ground for two or three hours. We have the finest lot of cantaloupes I ever grew, in spite of the drouth, and the biggest Hubbard squashes (and a good lot of them also), from just a few hills we planted. The whole product of this quarter-acre we are planning to give away to our neighbors right and left.

THE SOLOMON ISLANDS GOURD, OR GUADO BEANS, AGAIN—SEE PAGE 17, JULY 15.

This gourd, or bean, has now climbed a trellis six or seven feet high, and it has gone a yard above the trellis, and lopped over. In fact, just after one summer shower it grew 8 inches in 24 hours. It has started quite a number of the so-called gourd beans. One of these is just in bloom this morning, Aug. 25. It is a queer-looking plant, any way. There is a cluster of blossoms, and then on a separate stem is the fruit. The fruit blossom sends out filaments much like corn silk on a small scale. Our good friend Henry Borchers, of Laredo, Texas, will probably have some edible fruit before ours, for his seed was gotten in earlier than ours, and he is so much further south. If the frost will now be so accommodating this season as to hold off till about November 1, I hope to have edible dasheens and guado beans raised here in Ohio, and we will give you a picture of the latter at a later date if possible.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

PRICES FOR THE COMING YEAR AND EARLY-ORDER DISCOUNTS.

It is five years since there has been any material change in prices of hives and frames and other articles made from lumber. The upward movement of prices of most commodities has continued, largely because gold, the standard of values, has become cheaper through increased production. We are paying more for lumber and labor, and are compelled to make an advance in prices. We are working on a revised list which will be issued soon. Until this is out we will fill such orders as come in at present list without any early-order discount.

The new prices on hives, frames, etc., will be about 10 per cent higher. Sections are advanced 25 cts. per thousand; comb foundation, 3 cts. per pound.

The early-order discount, which will apply to the new list, not to the old, will be the same as formerly—7 per cent for cash orders in September, with one per cent less each month as the season advances. The usual exceptions are made in the application of the discount to certain goods. Full particulars on application.

Convention Notices

Oklahoma beekeepers came very near securing one of the best bee laws of any State in the Union at the last session of the legislature. If you want to know why we failed, come to the meeting at the apiary building, State Fairgrounds, Thursday evening, Oct. 2, 1913. We want to discuss such other topics as will be of general interest to Oklahoma beekeepers, and I shall appreciate it if every beekeeper in Oklahoma will drop me a card naming some subject that he would like discussed at that meeting.

N. FRED GARDINER.

Pres. Oklahoma Beekeepers' Association.

The annual convention of the Ontario Beekeepers' Association will be held on Nov. 18, 19, 20, 21. The following is the program, beginning

TUESDAY EVENING, NOV. 18:

7:30. Meeting of officers and directors.

WEDNESDAY MORNING, NOV. 19.

9:30. Minutes, Morley Pettit, Guelph, Secretary. President's Address, Denis Nolan, Newton Robinson.

First Vice-president's Reply, J. L. Byer, Mt. Joy.

Second Vice-president's Reply, Miss Ethel Robson, Elderton.

Co-operative work in the Counties. Alex. Dickson, Lancaster, Sec. Glengarry Association.

Blake Miller, Aylmer, Sec. Elgin Ass'n.

R. C. Fretz, Forest, Sec. Lambton Ass'n.

All other county secretaries are expected to join in discussion.

WEDNESDAY AFTERNOON.

2:00. The Office of Director, What does it Mean?

R. E. L. Harkness, Irena.

The Swarming Problem,

H. G. Sibbald, Claude, Ont.

Question-box, D. Donaldson, Carleton Place.

THURSDAY MORNING, NOV. 20.

9:30. Queen-rearing, John A. McKinnon, St. Eugene. The Association Organ, H. B. Cowan, Editor The Beekeeper, Peterboro.

Question-box, Jas. Armstrong, Cheapside.

THURSDAY AFTERNOON.

2:00. Address, E. R. Root, Medina, Ohio. Address, Dr. G. C. Creelman, L.L.D., President O. A. College, Guelph.

Election of Officers.

Reports.—Secretary, Treasurer, Directors, Committees, Representative to Exhibitions, Judges of Honey.

FRIDAY MORNING, NOV. 21.

9:30. The Question of Transportation.

Geo. F. Kingsmill, O. A. C., Guelph.

Notes from the Year's Work.

Morley Pettit, Provincial Apiarist.

Question-box, Chas. Blake, Snow Road.

FRIDAY AFTERNOON.

2:00. Comb-honey Production, D. Angus, Lambeth.

Extracted-honey Production,

John A. Lunn, Fingal.

Unfinished business.

BOOKS FOR BEEKEEPERS AND OTHERS

Any of these books on which postage is not given will be forwarded by mail postpaid, on receipt of price.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

Postage [Price without Postage]

PRACTICAL WORKS ON BEE CULTURE.

25	A B C of Bee Culture, cloth.....	2 00
25	" " half leather.....	2 75
25	" " German, paper.....	2 00
25	" " German, cloth.....	2 00
25	" " French, cloth.....	2 00
10	Advanced Bee Culture.....	1 00
	[Fifty Years among the Bees. New edition. 1 00	
	By Dr. C. C. Miller. Dr. Miller is too well known among the beekeeping fraternity to need any introduction. His book is charmingly written, and covers his experience in detail.	
15	Cook's Manual, cloth.....	1 00
5	Doolittle on Queen-rearing.....	95
15	Langstroth on the Honeybee, Revised edition	1 10
10	Quinby's New Beekeeping.....	90
5	British Beekeepers' Guide-book, by Thomas William Cowan, England.....	95
5	The Honeybee, by Thos. William Cowan.....	95
10	How to Keep Bees.....	90
15	Modern Bee-farm. By S. Simmins, cloth bound.....	1 85
	| Wax Craft, Cowan.....	1 00

POPULAR BOOKS ON BEE CULTURE.

11	The Bee People, Margaret W. Morley.....	1 40
11	The Honey-makers, Margaret W. Morley.....	1 40
11	Life of the Bee, Maeterlinck.....	1 30
11	The Swarm, Maeterlinck.....	1 30
7	The Bee-master of Warriolow, Edwards.....	50
10	Lore of the Honeybee.....	1 90
	Alexander's Writings on Practical Bee Culture. By the late E. W. Alexander, who conducted the largest apiary in the United States. A wonderfully interesting discussion of beekeeping in its broadest phases. Any one can understand it; 35 chapters, 95 pages. Paper bound, 50 cts. postpaid. 1	
	| A Year's Work in an Out-apiary.....	
	By G. M. Doolittle. Packed full of most valuable information ever given to beekeepers. A practical and interesting book by a very successful apiarist. Sale has reached nearly 50,000 copies; 60 pages, paper bound, 50 cts. postpaid.	
	| Beekeeping by Twentieth-century Methods, by J. E. Hand.....	50

The author shows not only how to control swarming, but how to treat foul brood without shaking, and discusses in a comprehensive way many other down-to-date apicultural problems and their solutions.

MISCELLANEOUS HAND-BOOKS.

5	A B C of Carp Culture, by Geo. Finley... 25
7	A B C of Potato Culture, Terry. New edition, revised and enlarged; paper, 50c; cloth, 75c; mail, 85c.

This is T. B. Terry's first and most masterly work. It has really made a revolution in potato-growing, and has been reprinted in several foreign languages. By getting the ground in proper condition to grow great crops of clover, and turning this under, Terry succeeded, not only in getting more potatoes, but even better ones, and in producing them at less expense also, than by any plan or system before the time he began his experiments in 1885. The book has already passed through three editions of many thousands. It not only includes potato-growing in the United States, but in Bermuda, the Island of Jersey, and other warmer parts of the world where "new potatoes" are raised for the express purpose of getting the high prices in the cities during January, February, and March. The book also gives special attention to the different and best methods for preserving and keeping seed potatoes in the very best condition to plant in all these different localities.

Postage

Price without Postage

5	A B C of Strawberry Culture, by T. B. Terry. New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.
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After Terry's potato-book had obtained such a kind reception from farmers, market-gardeners, and others, he was induced to give his plan of growing strawberries, as he did potatoes, by plowing under great crops of clover, and, like the potato-book, his writings gave a new impetus to strawberry-growing; in fact, some of his pupils declare that, aside from the picking, they can grow strawberries almost as cheaply per bushel as potatoes. By following Terry's teachings, thousands of people have not only been able to give their families but the whole wide world better strawberries, and more of them, than they ever saw before.

6	Asparagus Culture.....	40
6	Alfalfa Culture.....	40
	| Barn Plans and Out-buildings.....	90
2	Celery for Profit, by T. Greiner.....	25
	The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.	

10 Fruit Harvesting, Storing, Marketing, etc. 75 It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexperienced in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, \$1.00.

| Farming with Green Manures, postpaid. 90 This book was written several years ago; but since competent labor has got to be so expensive and hard to get many farmers are beginning to find they can turn under various green crops much cheaper than to buy stable manure and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting goods crops and keeping up the fertility by a similar treatment, on our ten-acre farm.

7	Farm, Gardening and Seed-growing.....	90
10	Fuller's Grape Culturist.....	1 15
5	Garden and Farm Topics, Henderson.....	60
12	Gardening for Pleasure, Henderson.....	1 10

While "Gardening for Profit" is written with a view of making gardening pay, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price \$2.00.)

12 Gardening for Profit..... 1 10 This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward marking market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts. (Retail price \$2.00.)

8 Gardening for Young and Old, Harris..... 90 This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground, and this matter of adapting it to young

Postage Price without Postage

people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3] Grasses and Clovers, with Notes on Forage

Plants 20
This is by Henry A. Dreer, author of the book "Vegetables under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10] Greenhouse Construction, by Prof. Taft. 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12] Greenhouse Management, by Prof. Taft. 15

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages, and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruit and flowers. The publisher's price is \$1.50, but as we bought quite a lot of them we can make a special price as above.

5] Gregory on Cabbages, paper. 20

5] Gregory on Squashes, paper. 20

5] Gregory on Onions, paper. 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

1] Handbook for Lumbermen. 05

5] Home Pork-making; 125 pages, illustrated. 40
I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15] How to Make the Garden Pay. 1 35

By T. Greiner. Those who are interested in hotheds, cold-frames, cold green-houses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price, \$2.00.

10] How to Keep Well and Live Long. 90

The above book by T. B. Terry is, in my opinion, destined to relieve more pain, sickness, and death than any other book in the whole world that has ever come to my knowledge. This is pretty strong language, I admit; but since Mr. Terry commenced, years ago, to urge the importance of pure air, pure water, and a simple diet of good simple food in moderate quantities, the whole wide world, doctors included, seems to be gradually falling in with him. Of course, other good and wise men commenced a similar crusade for better health long before Terry did; but he seems to have a happy faculty of getting hold of people and keeping their attention. After you once start in with the book you will be pretty sure to read it to the end, and you will ever after be a better and a happier man or woman for having read it. We have a special low price for clubbing with GLEANINGS—that is, both for \$1.50. If you have already paid for GLEANINGS a year or more in advance you can have the book for 75 cents postpaid. Since it first came out, only a short time ago, we have sold nearly 1000 copies.

3] Maple Sugar and the Sugar-bush. 25

5] Manures; How to Make and How to Use Them; in paper covers. 30

6] The same in cloth covers. 65

1] Nut Culturist, postpaid. 1 25

3] Onions for Profit. 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm; and even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

Postage Price without Postage

8] Practical Floriculture, Henderson. 1 10

0] Small-fruit Culturist, Fuller. 75

2] Experiments in Farming, by Waldo F. Brown. 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

10] Our Farming, by T. B. Terry. 75

Same, paper cover, postpaid. 50
In which he tells "how we have made a run-down farm bring both profit and pleasure."

If ordered by express or freight with other goods, 10c less.

10] Talks on Manures. 1 35

By Joseph Harris. Written in conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

10] The Dollar Hen. 90

The above book will be clubbed with GLEANINGS for one year at \$1.50; or if you have already subscribed a year or more in advance you can have the book postpaid for 75 cents.

My opinion is, that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up-to-date, and still fewer that pitch right into the superstitions and humbugs now scattered all through our poultry books and journals.

5] The New Rhubarb Culture. 40

Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book for the lessons taught indirectly in regard to forcing other crops besides rhubarb. Publisher's price 50c.

5] Tile Drainage, by W. I. Chamberlain. 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs to every one who has occasion to lay ten rods or more of tile. There is so much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5] Tomato Culture. 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South with some remarks by A. I. Root adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning factories. Part third.—By A. I. Root, treats of plant-growing for market and high-pressure gardening in general.

3] Winter Care of Horses and Cattle. 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. It you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

8] What to Do, and How to be Happy while Doing It. 65

The above book by A. I. Root is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages; cloth.

8] Same, paper covers. 40

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Beekeepers will change their minds and use different kinds of supers all of a sudden. Our trade used, before section-supers, shipping cases, etc., while now nearly every beekeeper in our locality produces bulk comb honey, which, consequently, leaves us with a big stock of section supers on hand, which we are willing to sell very cheap just to dispose of them. They are all in the original packages, just as we received them from the factory, and there is absolutely nothing the matter with them, only we have hardly any more sale for them in our locality.

70 2 I-8.....	.37 each	60 2 P-8.....	.37 each
25 4 I-8.....	.50 each	100 4 I-10.....	.55 each
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40 2 S-8.....	.37 each	35 4 S-10.....	.55 each
40 4 P-8.....	.50 each	75 2 S-10.....	.45 each
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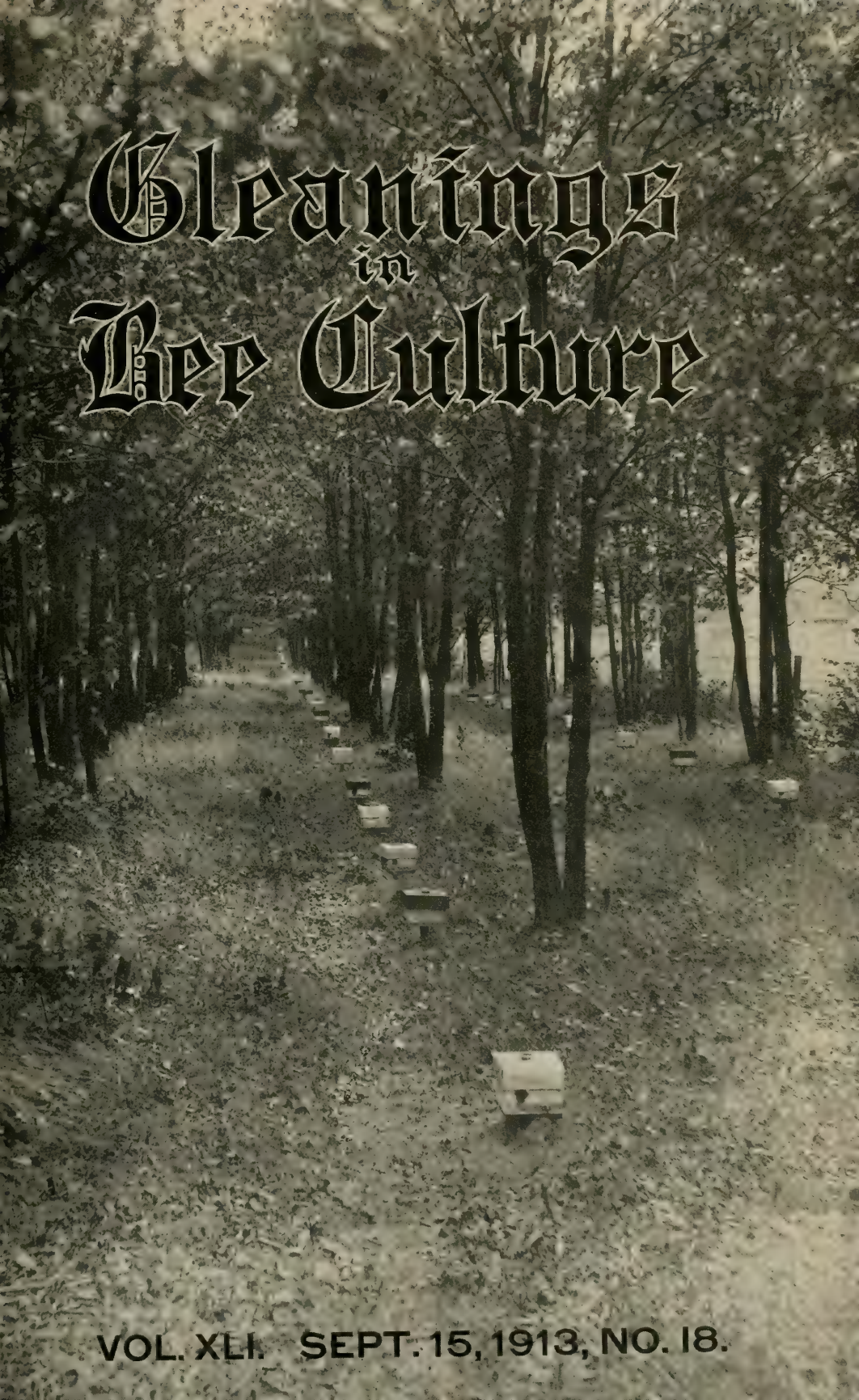
HONEY-CANS

As in previous seasons, we have prepared a very large and complete stock of honey-cans in our warehouse, ready for immediate shipment to you. Our honey-cans this season are the product of the largest independent can-manufacturing company in the United States, and are warranted to be the best grade possible to procure. Every can and case is fully guaranteed to give absolute satisfaction. The boxes are of the very best material that can be obtained for packing honey-cans, being strong and substantial, and securely nailed with cement-coated nails.

Prices quoted on application. Full line of Root's Beekeepers' Supplies always on hand.

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San Antonio, Texas

A sepia-toned photograph of a forest path. The path is covered in fallen leaves and leads into the distance. On either side of the path, numerous beehives are placed on the ground. The trees are tall and thin, with their leaves creating a canopy overhead. The overall scene is peaceful and natural.

Gleanings in Bee Culture

VOL. XLI. SEPT. 15, 1913, NO. 18.

ESTABLISHED 1891

TOEPPERWEIN & MAYFIELD CO.

(Incorporated)

Cor. Nolan @ Cherry Sts., San Antonio, Texas



Factory and Warehouse

To Our Friends and Patrons:

In presenting our claims for a continuance of the generous patronage bestowed upon us during the past year, we beg to submit a few facts concerning the bee industry, which may serve to interest our patrons as well as those engaged in the business.

Owing to the constantly increasing demand for comb foundation and beekeepers' supplies, we were compelled to enlarge our capacity, install new machinery, and otherwise improve our plant, enabling us to produce 500 pounds of comb foundation per day. This has been made possible through the generous patronage given us during the past years.

Although it has been a difficult matter to secure enough beeswax to supply the demand, we have on hand a much larger stock than we have ever had before. We also buy and sell honey at ruling prices. On account of the increasing demand for this product the prices in Texas have been higher than in many other States. Bulk comb honey, in the $5\frac{3}{8}$ -inch frames, same as described in our catalog, page 11, Fig. 540, is produced almost exclusively in Texas. In nearly all parts of this State it is best to use the ten-frame hives.

It is the intention of the present management to increase materially the capital of the company, with the view of carrying a stock of supplies that will meet all the requirements of the trade. This will enable us to effect prompt shipments at all times, and thus avoid any delay and annoyance to customers on account of shortage of stock.

It will be our endeavor to accord our customers all possible courtesies and consideration in any matters that may arise. Mistakes will occur at times, as is only natural, and we only ask that they be brought to our attention so that they may be rectified. Our customers may be assured of the best quality of goods at as reasonable prices as are consistent with business methods.

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The Western Honey Bee

is making good as the result of organized co-operation in the West. Our contributors write about colonies of bees by the hundreds, and honey in car lots. Be one of our family, and help us and yourself by subscribing and writing for the W. H. B. \$1 a year. Sample free. ADVERTISERS get results for money spent with us. Rates on application. California State Beekeepers' Association, owners.

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How much can you see?

How many people there are to look, and how few there are to see and to think! The best realms for good seeing are in nature.

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Edward F. Bigelow, Editor,

The Agassiz Association, Inc.

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located in mating distance of Moore's bees, are winners. One trial will convince the most skeptical. Untested, \$1.00; 6, \$5.00; 12, \$9.00. Safe arrival and satisfaction guaranteed.

(See below) F. L. Aulick, Rt. 3, Falmouth, Ky.

This is to certify that F. L. Aulick has been with me the past two seasons, and understands thoroughly the rearing of superior queens, and that he is reliable; and my agreement that he makes will be strictly adhered to.

Morgan, Ky., Aug. 9, 1913.

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Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. . . . Beeswax taken in exchange for supplies or cash.

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Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb, 16 to 17; white extracted, 10 to 11. Beeswax, 30. There is an active demand for white comb honey.

Boston, Sept. 4.

BLAKE-LEE CO.

INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cents in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cents, cash or trade.

Indianapolis, Sept. 10.

WALTER S. POWDER.

ALBANY.—The honey demand is improving somewhat, but prices are problematical as yet. We hear conflicting reports about the crop; but the general report is a short crop; and we are asking full prices for receipts so far—16 to 17 for white; 15 for mixed white, and hope to sustain these prices. White extracted brings 9 to 9½; amber, 7½ to 8; buckwheat 7 to 7½.

Albany, Sept. 6.

H. R. WRIGHT.

KANSAS CITY.—Since our last quotations on honey, two cars of Western comb honey have been unloaded on our market, consequently prices are somewhat lower; demand fair. We quote as follows: No. 1 white comb, 24-section cases, \$3.25 to \$3.35; No. 2 ditto, \$3.00; No. 1 amber, \$3.00 to \$3.15; No. 2 amber and dark ditto, \$2.50 to \$2.75; extracted white, per pound, 8½. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE COMPANY.
Kansas City, Mo., Sept. 3.

Honey reports continued on page 5.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributer. C. B. Lewis Company, Watertown, Wis.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

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During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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SCHENECTADY.—The white comb honey received up to this time has come from local producers, and is of inferior quality, combs being more or less discolored, and not well filled. Buckwheat grades are better, but no great amount is ready for market. We think fancy white clover will bring 16 to 18; other grades, 13 to 14, according to quality; buckwheat, 12 to 13. We have made no sales of extracted in quantities yet, and are not in position to quote actual prices from sales.

Schenectady, Sept. 4. CHAS. MACCULLOCH.

NEW YORK.—Receipts of the new crop of comb honey are rather light as yet; demand is good, and we quote as follows: No. 1 and fancy white 15 to 16; some strictly choice quality will sell as high as 17; off grades, 13 to 14. There are no prices established as yet on buckwheat comb honey, as none has arrived. We think, however, that it will find ready sale at about 12 cts. per lb. Extracted remains about the same; prices unchanged, with sufficient supply to meet all demands with the exception of California sage. Beeswax is steady at 31 to 32.

New York, Sept. 5. HILDRETH & SEGELKEN.

ST. LOUIS.—The arrivals of honey here to date have exceeded those of ordinary seasons, and the present market is not very active. Southern honey in barrels and cans has been coming in this market quite freely within the last two weeks. Extracted honey is selling slowly, and we quote it in barrels at 6 to 6½ cents, and in five-gallon cans at 6½ to 6¾ cents. Fancy comb honey is nearly nominal, and not moving at all here at present, owing to the warm weather. However, we quote No. 1 fancy white at 15 to 16; No. 2, 14 to 15; light amber, 12 to 14. By the case, fancy white comb honey will bring from \$3.00 to \$3.50 per case; No. 2, \$2.50 to \$3.00, according to quality. Dark and broken honey is almost unsalable. Beeswax is in good demand, but is lower, and is now selling at 30 cents for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Sept. 4.

Kind Words from our Customers

"PEACE ON EARTH, GOOD WILL TO MEN."

In renewing my subscription to GLEANINGS, please permit me to say the help I have received from a single copy in handling bees has been worth more than I have paid for a whole year's subscription. And those blessed Home talks! Eternity alone will reveal the good they have done. Many years ago, because of the great uplift these talks had given him, my attention was first called to GLEANINGS by one Fayette Lewis, of Shenandoah, Va. Living with this journal in my home for these years, I am now glad to be able to say of it, as was said of the Master, it goes "about doing good."

Purcellville, Va., July 30.

J. T. GRUBB.

KIND WORD FROM A NEW SUBSCRIBER.

I have recently subscribed for GLEANINGS, and to say I am well pleased with it would be a mild way of expressing myself. I wish to congratulate you on being editor of such a nice little semi-monthly magazine, and it seems to me as if no true lover of bees could help appreciating the many helps that are to be had in the short sketches printed therein. I have observed in the few numbers I have received that all articles published are good clean reading—a fact that can not be said of a large part of the literature published throughout the land to-day. In your August 1st number the temperance articles should sink deeply into the minds of all; and there are a great many people in this country of ours who would be greatly benefited if they would read carefully this short but helpful sketch. I address you as I would address a commander of the army, realizing that back of you there are many who are hard at work gathering for the good of mankind articles which are profitable and instructive.

A. H. BARTLETT, Agt. M. & W. R. R. R.

Marshfield, Vt., Aug. 21.

Banking Quarters Suited to Out-of- town Depositors..

Efficiency in handling the accounts of people living at a distance from Medina has always marked the service of the Savings Deposit Bank Company.

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The Bank that Pays 4 per cent

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We buy and sell, carlots or less.

Honey producers of the Pacific States get in touch with us. . .

LEUTZINGER & LANE

420 to 424 Front Street, San Francisco, Cal.

THE "CABIN IN THE WOODS," ETC.

The old "cabin in the woods" made me homesick, for I am well acquainted with the country around there, and I know almost everybody you mentioned. You seemed to tell me just what I wanted to know. My father lived up there when I was a boy, but it has been 16 or 18 years since we came back to Indiana. We lived just a little way south of the Bingham church. I am 32 years old now, and have a wife and two little girls. I farm for a living, but I have a few bees. I had four colonies in the spring, have increased to ten, and have taken about 400 lbs. of comb honey. I hope you may live long and continue to "do good."

Crete, Ind., Aug. 20.

MURLIE BROWN.

[My good friend, I too often feel homesick when I even think of the old cabin in the woods and the happy hours I spent there. Were it not for the terrible winters, and oftentimes deep snows, I honestly believe I would rather live in the region of the Grand Traverse Bay than anywhere else in the world. If you can keep on increasing four colonies to ten with 400 lbs. of comb honey, you should be satisfied to stay where you are. Give our regards to the little girls, and, for that matter, I should like to send my regards to all the rest of the little girls in the whole wide world.—A. I. R.]

Gleanings in Bee Culture

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Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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RUSH ORDERS

BY MAIL.—Has your “forgettery” been working? And right this minute you need foundation or other items. See page 1 of our catalog, and it gives parcel-post rates on various articles.

BY EXPRESS.—Larger shipments than can go by mail we can rush out at once. Parcel-post and express orders receive our first attention.

BY FREIGHT.—Our rule is “ship same day the order is received,” and we break it only when absolutely necessary. Notice that Lansing is the railroad center of Michigan from which freight shipments can be delivered quickest.

And we fill all orders with Root's goods. Just remember that too. Send for catalog. Beeswax wanted.

M. H. HUNT & SON, LANSING, MICH.

OPPOSITE LAKE SHORE DEPOT.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

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J. B. MASON, Manager



Am now shipping Untested Queens from My

Celebrated Pedigreed Strain

My bees are the product of many years of breeding by SWARTHMORE and HENRY ALLEY. Both names stand out like beacon lights among our past and present breeders, for the best queens ever produced in the United States.

Never had foul brood.
Swarthmore Apiaries,
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We sell the best No. 25 jar made.

Heavy cartons that protect honey.

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Aplarios, Glen Cove, L. I.

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THE A. I. ROOT CO., Medina, Ohio.

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Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

“Griggs Saves Your Freight”

TOLEDO

“Griggs Saves Your Freight”

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

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We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. . . NEW 60-POUND CANS, two in a case, a specialty. . . FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.

“Griggs is always on the job.”



**"If Goods are wanted Quick,
send to Pouder."**

Bee Supplies!

A bounteous crop of finest quality honey has been secured, and, resulting from the needs of beekeepers in supplies, I have experienced the busiest season that I have ever known. The demand for the Root Goods has been excessive, and I have been very fortunate in keeping my stock complete and filling orders promptly. To do this my helpers and myself were required to apply ourselves from fifteen to eighteen hours per day. We were, of course, glad enough to do this, but I am going to offer some attractive discounts for supplies to be used next year if ordered early, and this will reduce the task of having so much to look after at the busy season. I believe the discounts will be a mutual benefit to all concerned. I am always glad to quote lowest estimates on any list of goods.

A feature on which I am now specializing is sending goods by parcel post. If you are within 150 miles of Indianapolis I can have your goods delivered to your home at a very moderate cost, if the package doesn't weigh over 20 pounds.

VEEDERSBURG, IND.

Walter S. Pouder, Indianapolis.

Dear Sir:—I wish to thank you for your prompt shipment of goods which I ordered a few days ago. They were brought to my house before I thought you had time to make up the order, and you well deserve your motto, "If goods are wanted quick, send to Pouder." I inclose another order and will be glad if you will send as quick.

Yours truly,

JAMES A. LYNCH.

Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

**SOME
SEASONABLE
UGGESTIONS.**

Bee-escapes,
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Honey Labels,
Vells, Smokers,

Bee-brushes,
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Cartons,
Bee Books,
Gloves.

You are doubtless in need of and ready to order one or more of these items. You want ROOT QUALITY and PEIRCE SERVICE of course. Why not include with this order the hives, supers, sections, foundation, etc., you will need for next season? Prices are lower now than they will be in the spring. Then it will be a great satisfaction to have every thing ready for immediate use when needed, and so be immune from the vexation and loss that may result from unavoidable delays during the rush season.

The flooded stock is pretty nearly closed out. A few odds and ends remain. If you can use any slightly damaged goods at very low prices, write for list.

Look the catalog over and make-up your order now. Do not hesitate to order even any small article needed, as the lower parcel-post rates now in effect insure delivery at trifling expense.

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Airdome Bldg., South Sixth St.

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New Goods Factory Prices Save Freight

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. . . ROOT'S . . .

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I feel like congratulating The A. I. Root Co. for making an invention that is such a satisfaction, and financially to the honey-producers' interests.

Elk Grove, Cal.

B. B. HOGABOOM.

For full particulars see our new catalog

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DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

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Philip H. McMillan, Pres.

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**Detroit & Cleveland
Navigation Company**



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Save \$5 to \$40

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Get factory prices on Kalamazoo Stoves—30 Days' Free Trial A Year's Approval Test and \$100,000 Bank Bond Guarantee.

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And Gas Stoves Too

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Kalamazoo Stove Co., Mfrs., Kalamazoo, Michigan

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By G. B. Lewis, Watertown, Wis.

Pack Your Apples Properly

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Coward
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Shoe

Gives a natural and healthful support to the entire foot-structure, strengthens the ankle, holds arch in place—protects against injury, and prevents "flat-foot." A first aid to shapely and healthy foot-growth.

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FOR CHILDREN, WOMEN AND MEN.

Send for Catalogue. Mail Orders Filled.

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Recent demand for comb foundation has been good, and our stock of beeswax is running low. We offer for good average quality and prompt shipment 30 cts. per lb. cash, or 32 in trade, delivered at Medina. Shipments from the Pacific coast should be in barrels or boxes. From other Western points, pack in double bags to get the most favorable rate. Be sure to mark the shipment so it can be identified when it arrives, and send us a shipping receipt with a statement of gross, tare, and net weight shipped. This is important as it gives us something to check so as to determine whether any has been lost in transit.

The A. I. Root Company
Medina, Ohio

Use KEROSENE Engine Free!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.

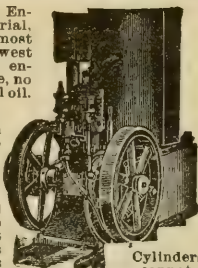
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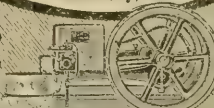
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Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50. Try me for rush order.

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TENNESSEE-BRED QUEENS

41 Years' Experience in Queen-rearing

Breed 3-band Italians Only

I am at last up with all contracts, and can fill orders by return mail—two to five dozen daily. Prices for remainder of season:

Untested, one for 75c;

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twelve for \$7 50.

Tested, double these prices.

The very best BREEDER, \$10.00.

Select Breeder, \$5.00.

Write for prices on larger orders.

John M. Davis
Spring Hill, Tennessee

QUEENS--3-band Italians

75 cts. each, \$4.25 for 6, \$8.00 per doz.

If these queens fail to please your money will be returned.

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WORTHINGTON, WEST VIRGINIA

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If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

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ITALIAN QUEENS--NORTHERN BRED

Superior winterers; descriptive list free. Bees by the pound. Untested, 75 cts.; select tested, \$1.50. Plans "How to Introduce Queens," 15c; "How to Increase," 15c; both for 25c. **E. E. MOTT, Glenwood, Mich.**

QUEENS AND BEES

An improved superior strain of Italians is what **QUIRIN RAISES**. Our stock is Northern bred and hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis., and July 20th (of same year) he wrote us saying they did just splendid, as at that date they had already filled their supers, and that he would have to extract them. We have files of similar testimonials.

Prices for rest of season	1	6	12
Select queens	\$ 75	\$ 4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden breeders	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuclei, no queen	3 25	18 00	32 00
Full colonies on 8-frames	5 00	25 00	
One pound bees, no queen	1 50	8 00	
Half pound bees, no queen	1 00	5 00	

Add price of queen wanted with bees. Bees by the pound, nuclei, and colonies; if wanted before June 1, add 25 per cent. **QUEENS NOW READY**. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO

Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,

Queen-breeder.

Route 1, Morgan, Ky.

SPECIAL NOTICE!

NOW is the Time to Requeen Your Bees

We have some very choice red-clover Italian queens that we will send by return mail. Tested, \$1.00; six, \$5.00. Untested, 75c each; six, \$4.00. We will guarantee every queen to give satisfaction.

Fred Leininger & Son,

Delphos, Ohio

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ARE PERFECT IN ALL RESPECTS

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Used and Recommended by
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The time to begin the use of French's Poultry Mustard is at the very beginning of the moulting season. At this time its results are most valuable.

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**Comb and
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We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. . . Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, 5 gallon capacity.

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—Well-ripened honey, clover blend.
CHAS. ZWILLY, Lemont, Ill.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—White-clover extracted honey in 60-lb. cans. HENRY HETTEL, Marine, Ill.

FOR SALE.—Light and amber extracted honey in new 60-lb. cans. Sample, 5 cts.
J. WARREN SHERMAN, Sag Harbor, N. Y.

FOR SALE.—Finest quality clover and clover-bass-wood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Several tons light-amber partridge-pea honey, packed 192 sections to carrier, \$19.20, f. o. b., Florida. J. J. WILDER, Cordele, Ga.

FOR SALE.—Fine ripe clover honey in 60-lb. tin cans, two cans to case. Sample, 5 cts. Address C. A. BUNCH, Lakeville, St. Joseph Co., Ind.

FOR SALE.—Buckwheat extracted honey in 60-lb. and 200-lb. kegs or 10-lb. pails for retail trade.
B. B. COGGSHALL, Groton, N. Y.

FOR SALE.—Nice, thick, well-ripened buckwheat honey in 60-lb. cans at 8½ cts. Sample 5 cts.
M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

FOR SALE.—White-clover honey in 60-lb. cans. Ripened on the hives. There is nothing finer in every respect. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Finest quality white-clover extracted honey in 60-lb. cans. State how much you want, and I will quote prices.
LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Finest quality clover honey in 5 and 10 lb. pails, at 10 cts. per lb.; 60-lb. cans at 8½ cts. per lb. Sample, 5 cts. Honey is well ripened and thick. MARTIN CARSMOE, Ruthven, Iowa.

FOR SALE.—No. 1 white comb, \$3.50 per case; No. 2, \$3.00, 24 sections to case, six cases to carrier, clover extracted, two 60-lb. cans to case, 9 cts. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Alfalfa honey; choice comb, in 24-section cases, at \$3.25. Extra-fine quality of extracted at 9 cts., put up in new 60-lb. cans. My honey took sweepstakes at Nebraska State Fair, 1913.
THOS. ATKINSON, Cozad, Neb.

RASPBERRY HONEY for sale.—This honey was left with the bees until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. It is put up in new 60-lb. tin cans. The price is \$6.00 a can. Sample by mail, 10 cts. The 10 cts. may be applied on an order for honey.
ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—A barrel of amber honey. Quote prices delivered, f.o.b., Cameron, Tex. FRANK MCLEERAN.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—White extracted honey. Send sample and price. Section foundation-mill for sale or exchange. W. H. FREEMAN, Ft. Covington, N. Y.

We will pay the highest cash price for thoroughly ripened extracted honey. Write us, stating quality and quantity, with prices F. O. B. your station.
SPENCER APIARIES, Nordhoff, Cal.

WANTED.—Honey in car lots. If you have or expect to have a car of honey, or if a car can be had in your vicinity, write to us and state your prices, delivered on car at your station.
OGDEN BEE AND HONEY CO., Ogden, Utah.

WANTS AND EXCHANGES

WANTED.—A cimeograph and printing outfit.
GEO. E. KRAMER, Valencia, Va.

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FOR SALE.—A 20-acre farm and 100 swarms of bees.
L. FRANCISCO, Mosinee, Wis.

British Columbia, West Kootenay District; 247 acres first-class fruit land, beautifully situated in fork of two rivers, ¼ mile from railway station, 20 miles from important city. Light clearing. Subdivided into 15-acre blocks. Price \$55 per acre. Third cash, balance to suit at 7 per cent.

NELSON REAL ESTATE AGENCY, Nelson, B. C.

NATURE'S TREASURE GARDEN is calling you. Come South and grow with the country. Land \$15 an acre up; cheapest in America; two and three crops grown yearly; ample markets. Living costs low. Climate very healthful and agreeable. Farm lists, "Southern Field" magazine, and State booklets free.
M. V. RICHARDS, Land and Industrial Agent, Southern Railway, Room 27, Washington, D. C.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices.
THOS. LITZ, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. CO., Greenville, Tex.

In 1912 and '13 our bees wintered perfectly in the Eureka concrete case. Write for circular and learn about them. B. T. BOSSERMAN, Williamstown, O.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars.
THE PENN CO. (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—U. S. Patent No. 1056783 for a bee-feeder. Will sell either outright or by States. For further information address
MRS. JESSIE ENHENDER, Rt. 5, Greenwood, Wis.

8000 lbs. new crop of hulled yellow-sweet-clover seed (biennial); 10 lbs. by mail, prepaid, \$3.10; 50 to 100 lbs., 20 cts. per lb.; also 100 lbs. hulled white, \$28.00; alfalfa seed, 15 cts. per lb.
R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—One hand-operated paper-cutter and one check-protector, a device for protecting commercial paper. The last named will be useful in business houses, and the first mentioned will be of use in a small printing establishment. I will sell either at far below cost. Correspondence solicited.
MRS. W. Z. HUTCHINSON, Flint, Mich.

BEES AND QUEENS

Fifteen full colonies of Italian bees, \$5 per colony.
MRS. ADDIE JENSEN, Federal Dam, Minn.

Mismated Italian queens for 30 cts. each.
C. G. FENN, Washington, Ct.

FOR SALE.—50 to 200 colonies, eight-frame, first-class.
E. F. ATWATER, Meridian, Ida.

NOTICE.—I have moved from College Point to Fremont Center. No more queens until May, 1914.
S. J. MALTBY, Fremont Center, N. Y.

Warranted purely mated golden Italian queens, \$1.00 each; six for \$5.00.
J. B. CASE, Port Orange, Fla.

Queens by return mail. Mismated Italians 40 cts. each or \$4.00 per doz.
LATSHAW HONEY CO., Carlisle, Ind.

No more rush orders for queens till Sept. 20. Booked full till then.
A. J. SEAVEY, Rt. 2, Farmington, Maine.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALRATH, Antioch, Cal.

Fine Italian queens, three-banded, prolific, hardy, gentle. Untested, 75 cts. each; 6 for \$4.25; dozen, \$8.00.
J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

Hardy northern-reared queens of Moore's strain of Italians, ready June 15. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00. P. B. RAMER, Harmony, Minn.

I will sell untested Italian queens at 60 cts. each, \$5.00 per dozen; no disease. Safe arrival guaranteed.
EDWARD O. MESERVE, Ventura, Cal.

Goldens that are golden, pure Italian queens, \$1.00 up. Send for booklet, but do not send rush orders.
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

The best of untested queens, 75 cts. each; \$8.00 per dozen. Bees by the pound and nuclei for sale. Ask for prices. WM. ATCHLEY, Beeville, Bee Co., Tex.

FOR SALE.—Italian queens from best strain. Pure mating guaranteed. Untested, 50 cts. each.
D. E. MEYER, Lowell, Ark.

FOR SALE.—Golden Italian queens, tested, \$1.00; select tested, \$1.25; untested, 60 cts.; dozen, \$7.00. I am now filling all orders by return mail.
D. T. GASTER, Rt. 2, Randleman, N. C.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address
DEROY TAYLOR, Box G, Lyons, N. Y.

Fine Italian queens, reared by best-known methods of a \$10 Doolittle breeder and select imported stock. Untested, 75 cts. each; 6 for \$4.00, by return mail.
J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—After June 20, fine Golden Italian queens, 75 cts. each; 6 for \$4.00; few choice breeders at \$3.00 each. Cash with order. Good honey-gatherers. EDWARD REDDOUT, box 43, Lysander, N. Y.

Choice virgins, 40 cts. each; 3 for \$1.00; untested, 60 cts.; tested, \$1.25; breeders, \$2.50; Italian or Carniolan.
STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Famous North Carolina bred Italian queens for sale. Plenty of fine queens on hand; good as the best. Up with obligations. Send in your orders. See June and July advertisements GLEANINGS for 1913. Untested, one, 75 cts.; 50, \$25; 25, \$13. Select untested, 50, \$30; 25, \$14; one, 90 cts. Circular free.
H. B. MURRAY, Liberty, N. C.

FOR SALE.—Pure golden Italian queens. Day-old virgins, 50 cts.; untested, 75 cts.; tested, \$1.00.
S. H. RICKARD, 506 Machesney Bldg., Pittsburgh, Pa.

WANTED.—Experienced apiarist to help pack bees for winter and to get ready for next season. May develop into steady work for a year or more. E. H. BRUNER, 3836 No. 44th St., Chicago, Ill.

For quick sale, 32 colonies of bees, one half in ten-frame Langstroth, one half in Danzenbaker hives, all with ample stores, and with one super for 4 x 5 sections each. No disease. All for \$100.
C. F. BUSHNELL, Gilbertsville, N. Y.

FOR SALE.—Large apiary with quantity of extra hives, supers, sections, etc. Immediate sale desired. Low price. For particulars address
J. A. WILLIAMS, Albany, Ga.

FOR SALE.—My entire apiary of 175 colonies of Italian bees with complete outfit for running the same for comb honey; also International Harvester auto truck. Selling on account of sickness.
J. S. SHATTERS, Fort Lupton, Col.

FOR SALE.—200 colonies good bees and complete outfit. Fine location, fine country, and fine local market. We make extracted and bulk comb. A fine opportunity for a good beekeeper.
J. W. SEAY, 608 Williams St., Waxahachie, Tex.

FOR SALE.—700 colonies, two supers around, patent hives, combs straight; located in four yards; good honey-house at each yard that will hold a big crop of honey. Price \$600. My crop this year is 3 cases around. M. W. HARVEY, Montrose, Colo.

Phelps' Goldens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.
C. W. PHELPS & SON,
3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Malvern Hill, Va.

Goldens and three-band Italian queens from the Golden State. Queens by return mail. No disease. One, 75 cts.; 6 for \$4.00; \$8.00 for 12. Special prices in large quantities. LEMUEL J. DUNN,
14 Garfield Ave., Rt. 6, San Jose, Cal.

Queens by return mail. Three-banded untested Italian queens, 60 cts. for 1; \$6.60 for 12, and \$50 for 100. Good as can be had at any price. No disease. Satisfaction guaranteed. If any untested queen I have sent out has proved to be impurely mated, I am willing to replace her free.
W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—Guaranteed purely mated three-banded Italian queens. I recommend four points—gentle, prolific, extra good honey-makers, good winterers. J. E. Hand strain. State inspectors' certificate. Queens by return mail or your money back. Untested, one, 75 cts.; tested, 85 cts.; select tested, \$1.00.
J. M. GINGERICH, Rt. 3, Arthur, Ill.

FOR SALE.—By return mail, young untested Italian queens, 75 cts. each; dozen, \$8.00; select tested, \$1.00; dozen, \$10.00; a few choice breeders at \$3.00; grade queens, 50 cts. each; dozen, \$5.00; also 10 good strong five-frame nuclei at \$4.00 each, with queen on standard Hoffman frames in new home-made eight-frame hives; no disease.
WILMER CLARKE, box 200, Earlville, Mad. Co., N. Y.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, \$1.00; over 3, 90 cts. each. Bees per pound, \$1.25; nuclei per frame, \$1.50. No disease here. Every thing guaranteed.

C. B. BAKSTON, Buffalo, Leon Co., Texas.

Queens from Georgia apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested, \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb packed any size to suit customer. Prices and samples sent free.

JOHN W. CASH, Bogart, Ga.

Three-banded Italian queens and bees. Untested queens, 75 cts. each; six, \$4.25; twelve, \$8.00; tested, \$1.25 each; six, \$7.00; twelve, \$12.00. For select queens, add 25 cts. each to the above prices. Nuclei without queens, one-frame, \$1.50; two-frame, \$2.50; three-frame, \$3.00; 1 lb. bees, \$1.50; ½ lb. bees, \$1.00. Add price of queen wanted with bees.

ROBT B. SPICER, Wharton, N. J.

FOR SALE.—200 colonies of bees, mostly in ten-frame hives, on solid sheets of foundation, placed upon stands 1 ft. high; requeened this year from Moore and Simmons stock. Location in orchard and alfalfa-seed district in Payette Valley. Honey-house, 400 comb-honey supers, large reversible extractor, 6000 sections, 50 lbs. surplus foundation, and horse and wagon. \$1300 cash buys the outfit if taken before Oct. 1. ROSS McCLANAHAN, Payette, Idaho.

FOR SALE.—115 colonies of Italian bees in good hives, Hoffman frames; combs on wired foundation; 200 supers complete; both hives and supers painted; 10 Porter bee-escapes with boards, foundation fastener, and every thing needed to run an apiary for comb honey. Sold \$800 worth this season; no disease; very heavy with stores. Will take \$500 for the whole if sold at once. I can leave the bees until a suitable time to move, or will sell or rent the location to purchaser. This is a bargain. Investigate. Reference, E. W. Peirce, Dealer in Root's goods, Zanesville, O. J. F. TRUESDALE, Duncan Falls, O.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

Single-comb White Leghorns.—\$1.00 each; pullets and cockerels, yearlings and cocks; shipped anywhere. As many as desired. Write for catalog.

WOODWORTH FARM, Wilton, Conn.

Pure home-made cane syrup, grown and made by me. This is the pure juice of our Southern cane, boiled to a density of 32 deg. Baume scale. There is nothing added to this juice. My price is \$4.50 per case of 6 1-gal. screw-cap cans, F. O. B. Mobile, Ala.

JOSEPH S. SCOTT, Mt. Pleasant, Ala.

YOUNG MAN, would you accept and wear a fine tailor-made suit just for showing it to your friends? Or a slip-on raincoat free? Could you use \$5 a day for a little spare time? Perhaps we can offer you a steady job. Write at once and get beautiful samples, styles, and this wonderful offer.

BANNER TAILORING Co., Dept. 529, Chicago.

HELP WANTED

WANTED.—Man to take charge of a small apiary on shares. U. A. VINCENT, Mars Bluff, S. C.

WANTED.—To correspond with temperate young man wishing to work with bees and go in business. Unoccupied locations for apiaries. Good opportunity for right man with small capital.

LOUIS G. SMITH, San Benito, Cal.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortland; St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Douiphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

NO. 25 JARS WITH PORCELAIN TOP.

We still have a supply of the old No. 25 jars with porcelain top which we can supply to those who prefer that style. We have them, one gross in a crate, at \$5.25 a gross, or in wood cases of two dozen each at \$1.00 per case in lots of six cases or more.

HELP WANTED.

This is the first season we can remember when we have not had more applications than we have places. We could use at present several boys, 16 years or older, and several girls or women, 16 years or older. Women are needed in our honey-bottling department, and boys for several classes of work.

ONE-POUND ROUND JARS.

Since our last notice on this popular jar we have secured from the factory which first supplied them a further supply, both in paper and wood cases. While this stock lasts we offer them at 85 cts. a box; 6 boxes, \$4.80; 30 boxes or more at 75 cts. a box for shipment from Medina only. From branch offices, add 5 cts. per case to cover extra freight and expense.

SPECIAL BARGAINS IN HALF-POUND TUMBLERS.

In filling half-pound tumblers of honey we frequently find one with a slight nick in the top edge, which is rejected, because we aim to use only perfect ware, and it would be difficult to seal such a tumbler tight for shipment. For some uses they would serve a good purpose. For instance, putting up jellies sealed with a thin coating of paraffine on top. These tumblers are in corrugated paper boxes of two dozen per box. We offer them without caps at 20 cts. a box; with tin caps, at 25 cts. a box; in lots of 20 boxes or more, 5 cts. per box less.

SWEET-CLOVER SEED.

We are now supplied with new white-sweet-clover seed unhulled, and within a week or two shall also have new hulled seed. We offer this seed for current orders at the prices given in following table:

Prices in lots of 1 lb. 10 lbs. 25 100

Melilotus alba, biennial...				
White sweet clover, hulled	.24	\$2.20	\$5.00	\$20.00
White sweet clover, unhull'd	.17	1.50	3.50	13.00
Melilotus officinalis, biennial				
Yellow sweet clover, hulled	.28	2.60	6.25	24.00
Yellow sweet clover, unhull'd	.21	1.90	4.50	17.00
Annual yellow, hulled...	.14	1.20	2.75	10.00

We have a nice stock of last year's yellow seed of good germination. We have heard from quite a number who are gathering seed for sale, and we find quite a variation in ideas as to value. There is a much larger amount of seed being saved this year, and we do not look for prices to go as high this year as last, because there will be more seed to go around.

SPECIAL NOTICES

A. I. ROOT

THAT HYBRID-TOMATO SEED.

Do not send money to me for the tomato seed. Send it to E. C. Green, Medina, Ohio—ten cents for about fifty seeds of his new hybrids.

THE SOLOMON'S ISLANDS GOURD, OR GUADA BEAN.

It has now produced three beans, or gourds, whichever you may call it. The longest is nearly a foot; and at the rate it is now growing, if frost holds off it may easily make several feet.

"CORN," THE ONLY CORN MAGAZINE IN THE WORLD.

In our issue for July 15 I gave the price of this magazine as \$1.00. I do not know how I came to make such a mistake, for the price is only 50 cts. for one year, or three years for \$1.00. Address Corn Publishing Co., Waterloo, Iowa.

BLACK MEXICAN SWEET CORN.

Just now we are almost living (!) on sweet corn; and my preference is very strongly in favor of the Black Mexican. It is sweeter than any of the other varieties, and it can be used much longer before it gets too hard to eat. Of course, it is not quite as early as the Golden Bantam and some others. Give me a couple of ears of the Black Mexican pretty well matured, and a glass of milk, and I can make a very good breakfast or dinner either, with but little else.

CANDY FOR QUEEN-CAGES, ETC.

The business at the Home of the Honeybees is assuming such dimensions that every little while I have one of my "happy surprises" because I did not know what was going on. As an illustration, in writing an article found in another column in this issue concerning water for queen-cages I was incidentally informed that we buy powdered sugar, for making the bee-candy for the cages, by the barrel; and, furthermore, that we have been using it by the barrel for several years. Just think of the number of queen-cages a barrel of sugar would provision.

"THE TRUTH ABOUT SWEET CLOVER"—THE NEW EDITION JUST OUT.

The new edition of our new book on sweet clover, revised and enlarged to 144 pages, is now ready to send out. It contains the latest developments from our experiment stations and the Department at Washington in regard to this legume that grows where nothing else will grow. More than that, it sweetens and fertilizes in a measure barren soils so that almost any thing else will grow after the crop of sweet clover. The new book tells also how sweet clover prepares the soil for alfalfa, perhaps better than any thing else. As the book is doing such wonders for agriculture and general farming, aside from the honey business, we send it out free of cost. All we ask is that you send 2 cents to pay postage.

TILE DRAINAGE, BY W. I. CHAMBERLAIN, ETC.

In 1891, after doing considerable tile draining here on our own premises in Medina, and after visiting W. I. Chamberlain, of Hudson, Ohio, who was then, and I presume is still, expert at the work, I arranged to have a little book prepared by Prof. Chamberlain, and we have since that time sold many thousand copies of it, and I am sure they have done a lot of good to the world. The reason I bring the matter up just now is that we have just sold out the first edition of the book, and our good friend Chamberlain is already at work getting out a second edition, carefully revised and up to date. We expect to have the book out about Jan. 1, and, may be, a little sooner. I expect, also, to put in an appendix to the book, in which I shall have something to say about tile drainage and sub-irrigation in Florida. The new book will be somewhat larger than the old one, and the price will probably be 50 cents by mail.

Later.—It seems that Dr. Chamberlain, before undertaking the revision, sent some inquiries to our Ohio Experiment Station, to which Director Thorne replies as follows:

Dr. Chamberlain—

My Dear Friend:—One of my stock letters reads:

"We have published nothing on tile drainage, but would advise the purchase of a little book on the subject written by Dr. W. I. Chamberlain, and published by The A. I. Root Co., Medina, Ohio." This means that we know nothing else as good. I am glad you are going to rewrite it—not that it is so very much out of date, but there is, of course, something to add, especially since the perfection of the traction ditcher. Mr. Williams and I have both recommended your book as being as late as any, and better suited to Ohio conditions.

Yours sincerely,

CHAS. E. THORNE.

Wooster, Ohio, Aug. 31.

THE "AJAX IMPROVED OXYGEN VITALIZER," 370 CHICKS FROM 370 EGGS, ETC.

Some little time ago a lady wrote me, calling my attention to a wonderful invention that would do away with "dead-in-the-shell" in the use of the incubator. I sent for particulars, and one of the advertising sheets had the above for a heading. They have a very ingenious explanation, to the effect that eggs hatched under a hen get more oxygen than any incubator at present furnishes; and their apparatus sends a constant stream of oxygen into the incubator. A bottle of water is connected to the incubator by means of a rubber tube. Then they have special tablets that, when thrown into the water, liberate slowly oxygen gas, just fast enough to give the eggs and chicks inside the benefit of the health-giving fluid. Mrs. F. J. Russel, of Summerdale, N. Y., makes oath that she hatched 370 chicks from 370 eggs, and they furnish also 22 different testimonials from those who have used the vitalizer. The oxygen furnished by the apparatus, they claim, is 99 3-10 pure. Now, what troubled me at first sight was that I am not aware of any chemical or combination of chemicals that will liberate oxygen by being thrown into water; and experts in chemistry tell me they know of no such substance. The well-known carbide for liberating acetylene gas is, of course, in common use. But acetylene gas is not oxygen by any means.

I have been waiting to find out more about this wonderful invention; and now I find in the *Rural New-Yorker* of August 30 a complaint from a man who bought half a dozen of the vitalizers. In the first test there were 32 dead in the shell; next, 54; and with a different incubator 72 died in the shells.

Now, all through these advertising sheets they put strong emphasis on sending "money back" if not satisfactory; but when the *Rural* people wrote them they said the "money back" referred only to those who bought a single vitalizer, but did not apply to agents who bought several.

On reference to Dun and Bradstreet, we find the Reliable Specialty Co., of Alexander, N. Y., is quoted blank.

Now just a word in closing. I do not like the idea of a company that does not include in its heading the name of some well-known and reliable man. I know there are lots of such "companies," especially in poultry literature. A poultry company once sent us some advertising. The man who brought it to our office ordered it inserted. We knew him and supposed him to be responsible. We never got our pay. He said we would have to collect from the "company," and as our relations had always been pleasant we let the matter drop.

Moral.—Do not send money to anybody nor take "stock" in any "great invention" unless some good reliable man comes out into the open and heads the concern.

If I have in the above done an injustice to the Reliable (!) Poultry Specialty Co. I will gladly apologize, and give them some free advertising.

THE NEW CELERY CULTURE, ETC.

The following, from our good friend T. Greiner, explains itself:

Mr. Root:—I think you are wrong in giving credit to T. Greiner for the "invention" of the "new celery culture," and for the authorship of a booklet of that title. After writing the New Onion Culture I had my eagle eye fixed on a "new celery culture," "new strawberry culture," etc.; but the Rural Publishing Co. (I believe) was the one that got ahead

of me with the "New Celery Culture." Served me right for going to sleep. But let us give credit to whom it belongs.

LaSalle, N. Y., Sept. 3.

T. GREINER.

I still feel, however, that a good deal of credit is due him in letting the world know through his book of the possibilities of celery under high-pressure gardening.

SWEET CLOVER; SOME OF ITS QUEER FASHIONS, ETC.

I received some sweet-clover seed from you last year, and sowed some with oats, and it failed. Thinking the seed was not good, late in the fall I tried it in the garden. It surprised me. It did not have time to bloom, so I kept it from freezing out, and it matured this year. I sowed more with oats, and never saw a plant. Like other grasses it will do best without a cover crop on some soils. I will try again next year with lime. T. A. STANSBERRY.

Little Falls, W. Va., Aug. 28. T.

Friend S., the above illustrates how queerly sweet clover sometimes behaves. A year ago we made a heavy seeding with oats, and did not succeed at all; but last spring when sowing oats again we put in sweet clover, and it seemed as if every seed made a plant. We have now, after the oats have been cut, a splendid stand. I should mention, however, that a heavy coating of lime was given the piece of ground about a year ago. This may have made a difference. I do not think there will be any need of protecting it from freezing unless sown very late indeed. We have always found it to germinate nicely in the fall where other stuff has been cleared off from our garden patch.

MUD-WASPS, THEIR MUD HOUSES, ETC.; OUR GOOD FRIEND MADELINE PRUITT TELLS US MORE ABOUT THEM.

Dear Mr. Root:—On page 590 of GLEANINGS for Aug. 15 you tell us about the mud-wasps in Florida, and mention one of their redeeming features. Allow me to tell you of two others. Their despised mud houses are highly valued by all grannies as one of the most valued home remedies for stopping vomiting. Detach one house about the size of a 4-oz. bottle; carefully tear up the rooms and remove the spiders, cocoons, etc., and put the mud ruins in a tumbler of water; stir for about five minutes, and strain to give to the patient, when vomiting will cease. Two glasses generally have the desired effect. At times I have had to administer the fourth, while at others one would be sufficient.

In August I always put some up in my medicine-case (some twelve houses), to keep through the winter. Wherein the virtue lies I do not know. I just imagine that, since they use a deal of their saliva in the building, that that is the ingredient that turns the trick. That the mud is mixed with a secretion of the salivary glands can not be denied. I have watched them mix up their little mud marbles, and then watched them build them on to their houses.

I have used mud of my own mixing to no avail—got it just where they did, and it did no good. The newly built houses are better than the older ones.

You also failed to say that they do away with no end of spiders. As soon as a room is built an egg is deposited on the floor or bottom of the cell; then from four to six spiders are crammed in and a door is made and locked on. They have no preference for any one kind or specimen of spider—just any thing they happen to spot that they can carry off. So in at least two ways they benefit humanity.

I believe that God placed every thing here to be of use to man in some way or other, but only we are so blind we don't catch on to all of them.

I hope this will find you and yours enjoying the best of health. God bless you and your Home papers. Long life to GLEANINGS and its editors. We admire it from cover to cover—well printed, clean advertising; size and all.

Abilene, Tex., Sept. 2.

M. E. PRUITT.

"Why do the heathen rage, and the people imagine a vain thing?"—PSALM 2:1.

Just as soon as GLEANINGS was started, or, rather, before it was started, I commenced warfare on the so-called patent beehives. Unscrupulous men were then busy going about the country selling farmers' "individual rights" for making and using their particular patent hive. I soon decided that no patent was needed, and, in fact, that the best hive in the world was a plain, simple box without top or bottom. This I called the Simplicity hive; and it has been for forty years shipped all over the world by carloads and carloads. The following letter gives us a good glimpse of the character of the men who used to go around peddling rights. He seems to be a poor discouraged remnant of the old-time custom.

Dear Mr. Root:—A man who said his name was Clark Shirley, claiming he owned two or three homes and a postoffice, has just left my house. He is trying to sell hives and farm rights, etc. He gave you a very bad name indeed, and also said that Rev. L. L. Langstroth could neither read nor write, and that his father (Shirley's father) furnished Langstroth money to patent his hive. He said your whole printing outfit could be bought for \$150, and that the A. I. Root Co. did not keep nor handle bees at all. I felt like having him arrested. I am sorry I saw him.

Well, Bro. Root, we have had two very poor honey years indeed. Last year, 1912, I didn't get a spoonful of surplus honey. This year started in well; but the dry weather cut the white clover short, and we got only about one-fourth of a crop. Bonaset is beginning to bloom now, and the bees, I hope, will gather enough to winter on. The corn crop is cut short by the dry weather.

When I sold out at Osprey, Fla., I came here to Kevil, Ky., and bought me a little home. I shall be 74 years old the 5th of November.

I was really hurt by that man Shirley for his slanderous words against you and Mr. Langstroth. May God bless you.

Kevil, Ky., Aug. 27.

J. G. NANCE.

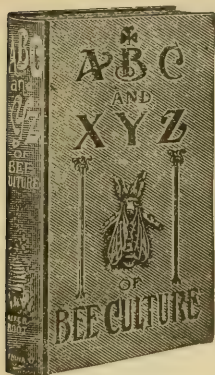
Well, friends, the above is a little rough on father Langstroth as well as your humble servant. Brother Nance, if you see that man again, ask him to take a trip up here to Medina and see whether or not the Root Co. keeps bees. Do not worry or be troubled, dear brother. Just get your Bible and turn over to the second Psalm, where I found the heading above.

Convention Notices

The Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in the courthouse at Freeport, Oct. 21, 1913. All interested in beekeeping are cordially invited to attend.

B. KENNEDY, Sec.

The A B C and X Y Z of Bee Culture....



Beautiful cloth-bound copy,
postpaid, regular price, \$2.00

Gleanings in Bee Culture

A semi-monthly magazine of 56 to 80 pages;
authoritatively edited and printed in finest
style; subscription price \$1 per year.

Combination Rate for the Two, \$2.50

Foreign postage, 60c extra; Canadian postage, 30c extra

The New Edition of Our A B C and X Y Z of Bee Culture

The new edition of the A B C and X Y Z of Bee Culture contains 750 pages, or 150 more than the former one. On account of rewriting so many of the old articles, and the incorporation of many new ones, making the book so much larger than formerly, we are now obliged to charge \$2.00 instead of \$1.50; but we believe that the reader will acknowledge that it is cheap, even at that price. Approximately it contains nearly 600,000 words. Any volume of this size on a technical subject like beekeeping would ordinarily command a price of \$5.00.

The new edition has been most thoroughly revised by E. E. Root, ably assisted by Dr. C. C. Miller, of Marengo, Ill., the veteran comb-honey producer; by Arthur C. Miller, of Providence, R. I., banker and beekeeper; by John H. Lovell, of Waldoboro, Me., naturalist, botanist, and entomologist; and by Prof. Eugene G. Baldwin, the one who wrote that interesting series of articles on Florida beekeeping a year ago.

Up to now the old editions have been printed on standing type; but the extensive additions and revisions made it necessary to discard the old type which was becoming worn, and adopt a new scheme for getting out this work.

The fact that the new edition was to be entirely reset, from beginning to end, made it possible to make the revision much more thorough than had ever been undertaken before. In many cases, instead of patching new matter on to the old it seemed more practicable to rewrite the articles entire. A notable example of this will be found in the case of foul brood. The former edition contained six pages, while the new has sixteen.

A notable feature of this last edition is the bee botany, which was entirely overhauled, and in many cases entirely rewritten, by John H. Lovell and Prof. E. G. Baldwin mentioned above. The subject of Pollen and the Pollination of Flowers was almost entirely rewritten by Mr. Lovell. We doubt if there is another man in the country who can handle these

subjects more ably than he. Dr. C. C. Miller to a great extent rewrote "Honeycomb." He also made important suggestions (which were adopted) on the subject of comb-honey production; and well he might, for he is now regarded as one of our best if not the best authority on the production of honey in sections. Mr. Arthur C. Miller, who for so many years made a close study of the internal economy of the hive, made numerous suggestions, many of which were adopted and incorporated in the text. In other cases, where he might or might not have differed with the author and reviser, his notes were put in the form of footnotes, at the bottom of the page, and signed "A. C. M." In a similar way will be found an occasional footnote signed C. C. M. (Dr. Miller). The unsigned footnotes are by the author.

Some of the best things that A. I. Root ever wrote on bees (and he wrote a good many) still appear in this volume, and always will. It is not so much because his writings have been stricken out of this edition, but because the immense amount of new stuff made necessary by the growth of the industry has made A. I. R.'s material seem small in comparison. His familiar style will be recognized, for example, in Absconding Swarms; After-swarms; Anger of Bees; Artificial Heat; Artificial Pasturage; Bee-hunting; Bee-moth; Italian Bees; Queens; Robbing; Stings. What he has written under these heads will always remain as classic in bee culture. No man had more enthusiasm in the study of bees than A. I. Root, and that enthusiasm is so conspicuous that his writings can usually be picked out of the other matter, even though they have been skillfully interwoven with matter written by others.

Taking every thing into consideration, we feel proud of our new A B C and X Y Z of Bee Culture. It is new from cover to cover. It is the work of experts in their respective lines. It is the largest and most comprehensive bee-book in any language in the world; and yet it is sold at the popular price of only \$2.00.

Starving America

By
Alfred W. McCann

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We Offer One Copy of STARVING AMERICA

Regular Price \$1.50

and GLEANINGS IN BEE CULTURE One Year

Regular Price \$1.00

Both for

\$2.00

The A. I. Root Company
Medina, Ohio

ROOT'S BEEKEEPERS' SUPPLIES . . .

You may have a catalog of supplies; but if you haven't ours you have missed something really worth while, and should get one at once. It is the largest and most complete ever published—more than a mere price list of supplies—a book that every beekeeper can read with pleasure and profit. Beginners will find answers to many perplexing questions, and advanced beekeepers timely suggestions that will save them money. Extensive and prosperous beekeepers are writing us frequent letters like the following:

The A. I. Root Co.:—We have bought bees almost every season for a great many years, and in this way handled several styles of frames; but to date we have not found any thing that compares with your metal-spaced frame for an all-round fixture.

For the benefit of students we have experimented with other styles of metal spacers, and in every case imperfections were soon discovered. Your metal-spaced frame has many good points to recommend it, and we began using this style of frame the first season it was put on the market, and have more than 20,000 of them in use now.

For strength and rapid manipulation this frame has no equal. We use it alike in brood-chamber and extracting-supers, as with our plan of management a frame may be in the brood-chamber at one time and in the super at another, or the reverse may be true.

Janesville, Minn., March 8, 1912.

THE HOFMANN APIARIES, per E. L. Hofmann.

Our catalog also gives a full and complete list of books and booklets which we can supply. Many of these booklets are free, which doesn't mean that they are not worth reading, but simply that we want you to be informed on the subjects of which they treat. Send for a catalog, and check those in which you are interested.

Quick Deliveries

Next to having the best goods made, there is nothing so important to the beekeeper in the busy season as to have goods delivered just when they are wanted most. It isn't always possible to ship goods from a distant factory and have them reach destination within a day or two, as is sometimes necessary during the height of the season, but with distributing-houses located in the large shipping-centers we are able to supply beekeepers everywhere, with no loss of time and with minimum transportation charges.

Send Your Hurry Orders

to any one of the offices listed below, and let us show you what we can do for you in point of service. Cars are going to these branches at the rate of two or three a week, so the stocks are new and fresh, and we usually have just what you want. If it isn't in stock at your nearest branch our manager will include your order with his specifications and you may have your goods come in the next car, thereby saving on transportation charges and getting the goods in better shape than you would by local freight.

Whatever Your Wants

we can supply you, and, of course, there is no question about the quality of our goods. The name "Root" in connection with bee-supplies means the best of every thing in the line, and the best is always the cheapest, as our customers will testify. If you have never used our supplies you should make a trial of them this season. Once used, we are sure you will want no other.

BRANCH OFFICES

New York, 139-141 Franklin St.	Chicago, 213-231 Institute Pl.
Philadelphia, 8-10 Vine St.	Des Moines, 565 W. 7th St.
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Washington, 1100 Maryland Ave., S. W.	
Mechanic Falls, Maine	

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MEDINA, OHIO



OCT 6- 1913

Agricultural
College

Gleanings in Bee Culture



VOL. XLI. OCT. 1, 1913, NO. 19.

EARLY-ORDER CASH DISCOUNTS

Apply Here just as they
do at the Factory

As Southwestern distributors of **ROOT'S BEEKEEPERS' SUPPLIES**, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our beekeeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous goods, and the prices in our special catalog are the same as their own. There is an extra saving for you in ordering from us—**FREIGHT**. Better give this your special attention before ordering from elsewhere.

THE CASH DISCOUNT ON EARLY ORDERS PLACED IN OCTOBER IS 6 PER CENT.

This applies to every thing in the way of beekeepers' supplies except a few special articles. On large general orders we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

REMEMBER WE MANUFACTURE THE FAMOUS WEED PROCESS COMB FOUNDATION.

We have a large demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 6 per cent.

Toepperwein & Mayfield Co.
San Antonio, Texas

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MEANS

**GOOD QUALITY. SCIENTIFIC WORKMANSHIP
CAREFUL PACKING
EFFICIENT SERVICE**

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

“falcon” Bee Supplies.

Shipping-cases, Extractors, Hives, etc. . . Everything for the Beekeeper. Inventory Sales.

SUPPLIES FOR 1914—Take inventory of supplies now and figure what you will need for a slim season. Get them ready at odd times in the winter; and if there is a good season you will have ample time to reorder in April and get them for use. We like to make “Inventory Sales” of “Falcon” supplies, for we know that we are dealing with an up-to-date beekeeper.

INVESTMENT—What is the investment of an extra \$25.00 in supplies to the loss of 500 pounds of honey? Resolve to change for 1914, and buy “Falcon” supplies now.

EARLY-ORDER DISCOUNT—For “Falcon” hives and supplies bought now we give an early-order cash discount equal to 12 per cent per year. You see it pays for a strictly money basis. Write for early-order discounts, and send list of wants for quotation.

“FALCON” QUALITY—In making our beehives, all of our waste lumber is made into cheap toy building-blocks, so that we are able to put better material in our hives and goods. Get a trial lot this fall so that you can see for yourself, and still have time to order 1914 supplies.

FREE SAMPLES of our famous “Falcon” foundation, made in our factory at Falconer, N. Y., cheerfully sent postpaid with copy of catalog, and name of nearest dealer if desired.

W. T. Falconer Manufacturing Company, Falconer, New York
Where the good beehives come from

The Western Honey Bee

is making good as the result of organized co-operation in the West. Our contributors write about colonies of bees by the hundreds, and honey in car lots. Be one of our family, and help us and yourself by subscribing and writing for the W. H. B. \$1 a year. Sample free. ADVERTISERS get results for money spent with us. Rates on application, California State Beekeepers' Association, owners.

Business Office Address

The Western Honey Bee
3497 Eagle St., Los Angeles

WANTED!
NEW CROP HONEY
New York and Pennsylvania
COMB
ESPECIALLY

Write us, stating quantity, quality, style of sections, when ready for shipment, etc. Will buy or handle on commission.

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**HOW FAR CAN A BEE
SEE?**

That question has been argued “time and again,” but it doesn’t worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think! The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. 10c a single copy.

Edward F. Bigelow, Editor,
The Agassiz Association, Inc.
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It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard **G. B. Lewis Company, Watertown, Wis.**

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BUFFALO.—The market for comb honey is pretty slow here. I think it is owing to the fruit season not being at an end. Cooler weather will also help to make a better demand. Receipts are not heavy, and I think it is because the demand is slow. I think there is plenty of honey that would come to market if it would move freely. White comb honey is selling at 16 to 17. No buckwheat is in the market, and price has not been established. Not much if any thing doing in extracted.

Buffalo, N. Y., Sept. 23. W. C. TOWNSEND.

KANSAS CITY.—The receipts of comb honey are large. Three cars of Western comb are on the market, besides local shipments. The demand is good. Receipts of extracted are not large; demand fair. We quote No. 1 white comb, 24-section cases, at \$3.15 to \$3.25; No. 2, ditto, \$3.00; No. 1 amber, ditto, \$3.10; No. 2, ditto, \$2.75 to \$3.00; extracted white, per pound, 8 to 8½; extracted amber, 7 to 8. Beeswax, No. 1, 30; No. 2, 25.

C. C. CLEMENS PRODUCE CO.

Kansas City, Sept. 17.

CINCINNATI.—The crop of honey throughout the States is greater than one can imagine. While the prices are sagging somewhat it is only a question of having the nerve to hold up the price. We are still selling comb honey at 14 to 16, for a good to choice grade; while amber extracted in barrels is selling at 6½ to 9, according to the quality and quantity purchased. Please observe the above are our selling prices, not what we are paying. For choice bright yellow beeswax we are paying 30 cts., delivered here.

Cincinnati, Sept. 19. THE FRED W MUTH CO.

Honey reports continued on page 5.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributer. G. B. Lewis Company, Watertown, Wis.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cts. in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cts., cash or trade. Indianapolis, Sept. 23. WALTER S. POWDER.

SCHENECTADY.—The quality of early comb honey coming forward is very inferior; but on account of scarcity it sells readily at 13 to 14 cts. Buckwheat is somewhat better, but not up to the standard, and commands the same price. No. 1 white would bring 16 to 18; white extracted, $8\frac{1}{2}$; dark, $7\frac{1}{2}$ to 8. Schenectady, Sept. 24. CHAS. MACCULLOCH.

ALBANY.—Honey market here is firm under light receipts and good demand. Prices are fully as high as consumption will stand. We quote best white comb, 16 to 18, according to style; No. 1 white, 16; mixed, 15; buckwheat, 13 to 14. There is a good demand for extracted, which seems to come slowly, selling—white, $9\frac{1}{2}$ to 10; nearly white, 9; light amber, 8 to $8\frac{1}{2}$; dark or buckwheat, $7\frac{1}{2}$ to 8. We think the sooner honey is marketed, the better prices will be obtained.

Albany, Sept. 22.

H. R. WRIGHT.

NEW YORK.—The new crop of comb honey is now beginning to arrive quite freely; the demand is good for all grades, and we quote fancy white at 16, and some especially fine lots will bring 17; No. 1 white, 14 to 15; No. 2 at 13; mixed, dark, and buckwheat at 11 to 12 cts. per lb. Extracted is in fair demand with sufficient supply of all grades excepting California sage. We quote white clover at 8 to $9\frac{1}{2}$, according to quality; light amber at $7\frac{1}{2}$ to 8; dark, mixed, and buckwheat at 7 to 8; Southern, in barrels, as to quality, 70 to 80 cts. per gallon. Beeswax is steady at 32.

New York, Sept. 23. HILDRETH & SEGELKEN.

CINCINNATI.—The demand for both comb and extracted honey is not as brisk as it should be for this time of the year. We are receiving quantities of both comb and extracted honey. Fancy white-clover comb honey is selling at 16 cts. per lb.; No. 1 white, \$3.50 per case of 24 sections. Off grades do not sell. White-clover extracted honey in 60-lb. cans is selling from 9 to $9\frac{1}{2}$. Amber grades are selling from $7\frac{1}{2}$ to $8\frac{1}{2}$, according to grade and quantity purchased. Beeswax is selling from \$33.00 to \$35.00 per 100. The above are our selling prices, not what we are paying.

Cincinnati, Sept. 18. C. H. W. WEBER & CO.

ST. LOUIS.—Our honey market has shown some improvement lately, and we expect a better demand for both extracted and comb honey from now on. The prices on extracted honey remain about the same, and the supply is quite sufficient to meet the demands. We quote extracted honey in barrels and half-barrels at 6 to $6\frac{1}{4}$ cts.; in five-gallon cans, at $6\frac{1}{2}$ to 6 $\frac{3}{4}$. Fancy white comb honey is selling at 15 to 16; No. 2, 14 to 15; light amber, 12 to 14; by the case, \$3.00 to \$3.25 for fancy white; No. 2, \$2.50 to \$3.00, according to quality and color. Dark or broken comb honey is almost unsalable. Beeswax has been in good demand lately, and is now quoted at 32 cts. for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO.

St. Louis, Sept. 24.

CHICAGO.—The market during the past six weeks has been practically one of large receipts and few sales. It is difficult now to place the best grades of comb honey at more than 17 cts. per lb., with the majority of the receipts selling at 15 to 16. The amber grades range from 1 to 3 less. The weather has been too warm up to this time to place honey with the general trade; but now that the peach season is drawing to a close there is a probability of a much more active market. Extracted honey is also quiet, with the white grades bringing from 8 to 9; amber, 7 to 8, according to kind and quality. Extracted in barrels sells at from $\frac{1}{2}$ to 1 ct. per lb. less than in cans, as the trade no longer wants it in that shape. Beeswax is steady at from 30 to 32, according to color and cleanliness.

Chicago, Sept. 18. R. A. BURNETT & CO.

Saving Money By Mail

Do not hide your savings at home. Forward them by mail to this bank and avoid loss by fire or theft.

The Savings Deposit Bank Company of Medina receives deposits from all over the world in its "Banking by Mail" Department.

When your savings are deposited in this bank they are protected by a large capital and surplus, and by the conservative management of capable business men and bankers.

Four per cent interest on Savings Accounts of \$1.00 or more.

The SAVINGS DEPOSIT BANK COMPANY Medina, Ohio

ZANESVILLE.—The demand for honey continues active and firm. Best grades of white-clover comb we quote at 18 to 20 cts. wholesale; in a jobbing way, 17 to 18. Best white extracted in 60-lb. cans is quoted at 11 cts. down to $9\frac{1}{2}$, according to quantity. For beeswax of good quality, producers receive 32 cts. in trade, 30 cts. cash.

Zanesville, O., Sept. 25.

E. W. PEIRCE.

LIVERPOOL.—Since our last report, about 128 barrels of Chilian honey have been sold—fine pile X at \$8.64; pile 1 at \$7.32 to \$7.68; pile 2 at \$6.84 to \$7.20, and pile 3 at \$6.24. There is a good demand for fine white honey; but in lower grades there is not much doing. Stocks of Jamaican are exhausted, and there is a retail business doing in Californian honey round about \$11.52. There has been more inquiry for beeswax, and 35 bags of Chilian have been sold at \$37.62 to \$39.48 per cwt., as to quality.

Liverpool, Eng., Sept. 5.

TAYLOR & CO.

HONEY COMB AND EXTRACTED

We buy and sell, carlots or less.
Honey producers of the Pacific
States get in touch with us. . .

LEUTZINGER & LANE

420 to 424 Front Street, San Francisco, Cal.



ITALIAN BEES AND QUEENS

Extra fine, warranted, tested queen, \$1.00; untested, 75 cts.; three-frame nucleus, with queen, \$2.75. Full colonies in eight-frame Dovetailed hives, \$5.50. Try me for rush order.

J. L. FAJEN, . STOVER, MISSOURI

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

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Twenty-five cents per agate line, flat. Fourteen lines to the inch.

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No medical or objectionable advertising accepted.

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RUSH ORDERS

BY MAIL.—Has your "forgettery" been working? And right this minute you need foundation or other items. See page 1 of our catalog, and it gives parcel-post rates on various articles.

BY EXPRESS.—Larger shipments than can go by mail we can rush out at once. Parcel-post and express orders receive our first attention.

BY FREIGHT.—Our rule is "ship same day the order is received," and we break it only when absolutely necessary. Notice that Lansing is the railroad center of Michigan from which freight shipments can be delivered quickest.

And we fill all orders with Root's goods. Just remember that too. Send for catalog. Beeswax wanted.

M. H. HUNT & SON, LANSING, MICH.

OPPOSITE LAKE SHORE DEPOT.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

IF YOU USE

bee supplies you should have our catalog.

We sell the best No. 25 jar made.

Heavy cartons that protect honey.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Aplarios, Glen Cove, L. I.

Established 1885



We carry an up-to-date line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. . . . Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

Root's Shipping Cases for Honey

We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. . . . NEW 60-POUND CANS, two in a case, a specialty. . . . FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.
"Griggs is always on the job."



"If Goods are wanted Quick,
send to Pouder."

Bee Supplies!

A bounteous crop of finest quality honey has been secured, and, resulting from the needs of beekeepers in supplies, I have experienced the busiest season that I have ever known. The demand for the Root Goods has been excessive, and I have been very fortunate in keeping my stock complete and filling orders promptly. To do this my helpers and myself were required to apply ourselves from fifteen to eighteen hours per day. We were, of course, glad enough to do this, but I am going to offer some attractive discounts for supplies to be used next year if ordered early, and this will reduce the task of having so much to look after at the busy season. I believe the discounts will be a mutual benefit to all concerned. I am always glad to quote lowest estimates on any list of goods.

A feature on which I am now specializing is sending goods by parcel post. If you are within 150 miles of Indianapolis I can have your goods delivered to your home at a very moderate cost, if the package doesn't weigh over 20 pounds.

MONONGAHELA, PA.

Walter S. Pouder, Indianapolis.

Dear Sir:—Comb honey arrived in excellent condition, and I am highly pleased with quality of the honey. I will say a good word about your business, and I appreciate your promptness and careful methods.

Yours,

EDWARD MAYHUGH.

Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

SOME EASONABLE UGGESTIONS.

Bee-escapes,
Honey-extractors
Uncapping-knives,
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Glass Jars
Honey Labels,
Vells, Smokers,

Bee-brushes,
Wax-presses,
Hive-tools
Tin Cans,
Cartons
Bee Books,
Gloves.

You are doubtless in need of and ready to order one or more of these items. You want ROOT QUALITY and PEIRCE SERVICE of course. Why not include with this order the hives, supers, sections, foundation, etc., you will need for next season? Prices are lower now than they will be in the spring. Then it will be a great satisfaction to have every thing ready for immediate use when needed, and so be immune from the vexation and loss that may result from unavoidable delays during the rush season.

The flooded stock is pretty nearly closed out. A few odds and ends remain. If you can use any slightly damaged goods at very low prices, write for list.

Look the catalog over and make-up your order now. Do not hesitate to order even any small article needed, as the lower parcel-post rates now in effect insure delivery at trifling expense.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

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PRACTICE

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Tenth and G Sts., WASHINGTON, D. C.

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Office and Courts

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The A. I. Root Co.

Boston New England

Is the Shipping Center of
Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

New England Beekeepers Every Thing in Supplies

New Goods Factory Prices Save Freight

CULL & WILLIAMS CO.
Providence, R. I.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR

"FALCONER"

Write for discounts--we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

A BEEKEEPER who uses cheap shipping-cases for his comb honey isn't necessarily mean. The chances are he's thoughtless. But many grocers or other dealers who receive his honey will not accept this generous view.

Among that number may be the very grocer he wants to influence most—the one who has the best trade in honey in that locality.

So he should use good shipping-cases, such as we make. To use them is economy, not an expense.

For particulars write us or our dealers, or consult our catalog.

The A. I. Root Company
Medina, Ohio

New York, Chicago, Philadelphia, Washington, Des Moines.

Shipping Season is Here

Are you prepared for it? Be forehanded, and have your Shipping Cases all ready. . . We carry a large line of these and other goods. Our catalog for 1913 will be sent on request.

Sections and Foundation

A half million sections on hand, and a ton or more foundation ready for instant shipment.

THE A. I. ROOT CO., SYRACUSE, N. Y.

Send for Our Prices on

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We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

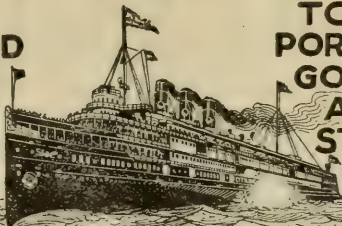
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Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

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HAMILTON, ILLINOIS.

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CLEVELAND
BUFFALO
NIAGARA
FALLS**

**TOLEDO
PORT HURON
GODERICH
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ST. IGNACE**



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MACKINAC**

THE CHARMS OF OUR SUMMER SEAS

Spend your vacation on the Great Lakes, the most economical and enjoyable outing in America

Where You Can Go

No matter to what point you want to go, use D. & C. Line Steamers operating to all important ports.

Daily service between Detroit and Buffalo, May 1st to November 1st. City of Detroit III and City of Cleveland III, two of the largest side wheel steamers in the world, on this division June 10th to September 10th. Daily service between Detroit and Cleveland April 15th to December 1st. During July and August two boats out of Detroit and Cleveland every Saturday and Sunday night.

Four trips weekly between Toledo, Detroit, Mackinac Island and way ports. T Day Stopover allowed at Alpena either direction on tourist tickets without additional cost. Daily service between Toledo, Cleveland and Put-in-Bay.

Special Steamer Cleveland to Mackinac Island, two trips weekly, June 15th to September 10th stopping only at Detroit every trip and Goderich, Ont., every Monday up-bound and Saturday down-bound.

Special Day Trips between Detroit and Cleveland, During July and August Tuesday, Wednesday, Thursday and Saturday out of Detroit; Monday, Wednesday, Thursday and Friday out of Cleveland.

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.

Address: L. G. Lewis, G. P. A., Detroit, Mich.

Philip H. McMillan, Pres.

A. A. Schantz, Vice-Pres. and Gen'l Mgr.



**Detroit & Cleveland
Navigation Company**



**GET TOP NOTCH PRICES BY USING LEWIS SECTIONS
FOR YOUR MONEY AND SHIPPING CASES**

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

**Why Pay the Dealer to
Select Your Range?**



YOU know what you want better than he does. Don't depend on his taste. Get the Kalamazoo book of 400 stoves and make your own choice.

Pay
Cash
or
Take
Your Time

**—30 Days' FREE
Trial—Save \$5 to \$40!**

In 250,000 delighted homes Kalamazoo ranges are praised 8 times a day. They make cooking a pleasure and results a pride.

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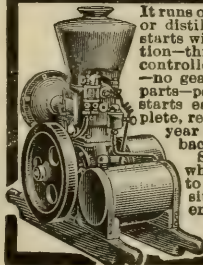
KALAMAZOO STOVE CO. Kalamazoo, Mich.

We make a full line of Stoves, Ranges, Gas Stoves and Furnaces.

We have three catalogues—please ask for the one you want.

A Kalamazoo
Trade Mark Registered. **Direct to You**
And Gas Stoves Top

**20 Reasons Why You Should
Investigate the SANDOW
Kerosene Stationary ENGINE**



It runs on kerosene (coal oil), gasoline, alcohol or distillate without change of equipment—starts without cranking—runs in either direction—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—starts easily at 40 degrees below zero—complete, ready to run—children operate them—5-year ironclad guarantee—15-day money-back trial. Sizes 2 to 20 horsepower.

Send a postal today for free catalog, which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your country. (164)

Detroit Motor Car Supply Co.
72 Canton Ave., Detroit, Mich.

"SCALECIDE"

TRADE MARK REG. U. S. PAT. OFFICE

DON'T NEGLECT FALL SPRAYING. GET READY NOW.

Many trees can be saved that would die before Spring if unsprayed. "SCALECIDE" will *positively* destroy San Jose and Cottony Maple Scale, Pear Psylla, etc., *without injury to the trees.*

Many of the finest orchards in the country have been sprayed with "SCALECIDE" for the past eight years, producing record crops and prize winning fruit. It costs less to spray with "SCALECIDE" than Lime-Sulfur, and does better work. We stake our reputation on this assertion. Write today for our booklet, "Scalecide, the Tree Saver." Sent free on request.

Our Service Department furnishes everything for the orchard at money-saving prices. Tell us your needs. B. G. PRATT Co., Dept. 6, 50 Church St., New York City.

TERMS TO SUIT

Write for Catalog A



BEST FOR EXTRACTING MONEY

FREE TRIAL FOR 30 DAYS NON-CRANKING KEROSENE ENGINE

"The Masterpiece of the Largest Makers of Two-Cycle Engines in the World."

The astounding success of Gaso-Kero two-cycle kerosene engines is based upon the perfect Bessemer Universal Fuel Feeder, controlled exclusively by us.

The Wonderful Bessemer Gaso-Kero Engine

This perfect fuel feeder has sounded the death knell of carburetors, and is the only thoroughly successful device for feeding kerosene, gasoline, distillate, etc., without change of equipment. It is revolutionizing the engine business. It is the one big, right idea; we discovered it and control it—you cannot get it in any but a "Gaso-Kero." "Gaso-Kero" two-cycle engines are simple—only three moving parts—are constant and steady as clockwork. 2 to 350 H. P. Immediate shipment.

Write for Catalog A14

BESSEMER GAS ENGINE CO.

Largest Makers of Two-Cycle Engines in the World

GROVE CITY, PA.



Pays for itself in fuel saved

**Pay me less
Get more Value**

60-DAY Free Trial 5 Year Guarantee



NOBODY can sell you a better engine and nobody will quote you as low as my latest reduced Factory Prices Direct to Users.

I made the WITTE, the leader in usefulness 27 years ago, when the gas engine business was in its swaddling clothes. I have kept it ahead ever since, as the thousands of my customers testify.

WITTE Engines

Gasoline, Gas and Kerosene.

Sizes 1½ to 40 H.-P. stationary and mounted, (skids and trucks) with detachable cylinders, vertical valves, and other features of merit without which no engine can be really high-grade. Start easily; no cranking; run without watching, 24 hours a day. Cheaper power, per horse, than others give.

Buy Direct From Factory

60 Days' Free Trial. 5-Year Guaranty.

I give you lowest factory prices ever known for strictly high standard engines of proven worth. No reasonable terms refused if you don't wish to pay all cash. Get my new book, FREE, with latest prices.

ED. H. WITTE, 1931 OAKLAND, AVE., KANSAS CITY, MISSOURI.

BETTER LIGHT from KEROSENE

Beats Electric or Gasoline

TEN DAYS FREE

SEND NO MONEY



Without sending a cent you can use this wonderful, economical light 10 days free, then return at our expense if not satisfied. Gives powerful white incandescent light, burns over 50 hours on one gallon Kerosene (coal oil). No odor, smoke or noise, simple, clean, won't explode. Guaranteed. We want one person in each locality to refer customers to.

Write for 10-DAY FREE TRIAL OFFER—agents' wholesale prices and learn how to get ONE FREE. WANTED Make money evenings and spare time. One farmer cleared over \$500 in 6 weeks. Exclusive territory given.

MANTLE LAMP CO., 350 Aladdin Bldg., Chicago, Illinois



Ruby FREE

To introduce our Genuine **Martec Gem** (U. S. Letters Patent)—the only satisfactory substitute for the diamond that stands all tests and has permanent dazzling brilliancy, we make this special offer:

If you will mention this advertisement and send us 6 two-cent stamps for our beautiful Art Catalog "The Story of the Martec Gem," we will send you free with catalog a genuine uncut Navajo Ruby (sells at \$50), bought by us from Navajo Indians, together with a cost-price offer for cutting and mounting.

Write today: **FRANCIS E. LESTER COMPANY** Dept. 629, Mesilla Park, N. Mex.



Make Hens Lay

more eggs; larger, more vigorous chick heavier fowls, by feeding cut bone.

MANN'S LATEST MODEL BONE-CUTTER

cuts fast, easy, fine; never clogs. 10

Days' Free Trial. No money in advance. Book free F. W. MANN CO., Box 27, MILFORD, MASS.

An Opportunity to Make an Independent Living from a small cultivated area in "The Land of Manatee"

On the Gulf Coast of Southern Florida

All the early vegetables, marketed at highest prices, are successfully grown—3 and 4 different crops per annum. A home in a delightful year-'round climate. A young man paid \$125 for an acre of land this year, and spent another \$125 in clearing and cultivating it in tomatoes. The production was 550 baskets, which were sold at \$2.50 per basket; total gross production from a single crop on an acre of ground, \$1375. The same advantages and opportunities are open to you. Let us tell you in detail of the possibilities in this favored section. Ask for beautiful illustrated book, "Fruit and Vegetable Growing in Manatee County."

J. A. PRIDE

General Industrial Agent
SEABOARD AIR LINE RAILWAY
Suite No. 376, Norfolk, Va.



THE RANGE WITH A STONE OVEN BOTTOM

*Direct to you with no dealer's profit to pay.
Saves one-third your fuel bills and half your labor.*

We say the **IMPERIAL** is the best range on earth at ANY PRICE. If you find we're wrong, our iron-clad guarantee assures the return of **EVERY CENT YOU'VE PAID. Test our range 30 days at your home.** The **IMPERIAL** includes features found in no other range—stone oven-bottom, dustless ash-sifter, odor-hood and oven thermometer.

Write for our stove and range book NOW. It's free.

THE IMPERIAL STEEL RANGE CO., 240 Detroit Ave., Cleveland, Ohio

THE BEST LIGHT

200 styles—carry a brilliant illumination into homes that have had to struggle along on oil, gas or candles. Brighter than acetylene or electricity and costs only two cents a week. Agents write to-day.

THE BEST LIGHT CO.
306 East 5th St., Canton, O.

BARGAIN IN QUEENS

Having many more nuclei this season than ever before I will have a large number of untested queens for sale during October. In order to make these queens go quick I will offer them while they last at 50 cents each. Satisfaction or money back.

L. H. ROBEY

WORTHINGTON, WEST VIRGINIA

"MENDETS."

Mend all leaks instantly in granite ware, tin, copper, brass, cooking utensils. No heat, solder, cement, or rivet. Fit any surface. Perfectly smooth. Wonderful invention. Household necessity. Package, assorted sizes, 25 cts. postpaid.

F. PATERSON, Box 4217, Germantown, Pa.

BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street

**LEWIS HIVES ARE BUILT LIKE FURNITURE
ARE PERFECT IN ALL RESPECTS**

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

QUEENS AND BEES

An improved superior strain of Italians is what QUIRIN RAISES. Our stock is Northern bred and hardy—all stock being wintered on summer stands.

We sent fifty nuclei to J. D. Nixon, of Lafarge, Wis., and July 30th (of same year) he wrote us saying they did just splendid, as at that date they had already filled their supers, and that he would have to extract them. We have files of similar testimonials.

Prices for rest of season	1	6	12
Select queens	\$ 75	\$ 4 00	\$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden breeders	5 00	12 00	22 00
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuclei, no queen	3 25	18 00	32 00
Full colonies on 8 frames	5 00	25 00	
One pound bees, no queen	1 50	8 00	
Half pound bees, no queen	1 00	5 00	

Add price of queen wanted with bees. Bees by the pound, nuclei, and colonies; if wanted before June 1, add 25 per cent. **QUEENS NOW READY.** Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO

Queens of MOORE'S STRAIN of ITALIANS

PRODUCE WORKERS

that fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,

Queen-breeder.

Route 1, Morgan, Ky.

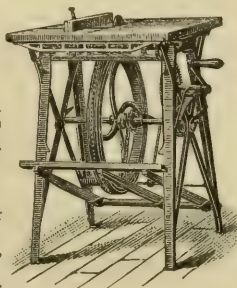
BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.,
545 Ruby St.,
ROCKFORD, - ILLINOIS.



THE BEEKEEPERS' REVIEW

would like to add a thousand new subscribers to their list for 1914, and are going to offer special inducements to get them. Listen: The April and May numbers contain the report of the National convention at Cincinnati, O., and in themselves contain 96 pages. The last half of 1913 contain the series of articles, 3000 colonies in 50 yards managed from one office, besides many other interesting articles that space forbids mentioning. We are printing 400 extra copies of the *Review* for the last half of this year on purpose to give to new subscribers; and as long as they last we will give the April and May numbers, containing the convention report, the last half of 1913, and all of 1914, for an even dollar. You have likely been thinking for some time that you would like the *Review*, and this will be an opportune time to get it at bargain-counter price. Address

The Beekeepers' Review
Northstar, Mich.

Good Digestion Means

Good Health

Therefore, daily add

FRENCH'S POULTRY MUSTARD

to your Fowls' Morning Mash

Its action is to aid digestion. As suitable for growing stock as for adults. One teaspoonful for every six fowls is the right quantity.

Write to us for a copy of pamphlet edited by Ralph Allen, Herts, England, with testimonials from the most prominent fanciers in the United States, who have used and are using **FRENCH'S POULTRY MUSTARD.**

The R. T. French Company
Mustard Makers
ROCHESTER, N. Y., Dept. D.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—Comb honey.
F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—Finest quality clover and clover-basswood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

New crop of extra-fine quality alfalfa seed, \$7.00 per bush.; sacks, 25 cts. extra.
R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Extracted honey, white clover and white and sweet clover mixed, in 60-lb. cans.
ARTHUR NORBERG, Spring Valley, Ill.

FOR SALE.—Finest quality white extracted and comb honey. Write for prices.
STEARNS & FOX, Fruitdale, S. Dak.

Light and amber extracted in 60-lb. cans, 7 to 9½ cts., according to quality and quantity.
GEO. H. KIRKPATRICK, Rapid City Mich.

FOR SALE.—Pure honey in 1 and 5 gallon cans and barrels. Sample, 10 cts. Price on request.
I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—Several tons light-amber partridge-pea honey, packed 192 sections to carrier, \$19.20, f. o. b. Florida.
J. J. WILDER, Cordele, Ga.

FOR SALE.—White-clover honey in 60-lb. cans. Ripened on the hives. There is nothing finer in every respect.
J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Fine ripe clover and touch-me-not honey mixed, in 60-lb. tin cans, two cans to a case. Sample, 5 cts.
C. A. BUNCH, Lakeville, St. Joseph Co., Ind.

FOR SALE.—Finest quality white-clover extracted honey in 60-lb. cans. State how much you want, and I will quote prices.
LEONARD S. GRIGGS,
711 Avon St., Flint, Mich.

FOR SALE.—No. 1 white comb, \$3.50 per case; No. 2, \$3.00; 24 sections to case, six cases to carrier; clover extracted, two 60-lb. cans to case, 9 cts.
QUIRIN-THÉ-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free.
P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Alfalfa honey, choice comb, in 24-section cases, at \$3.25. Extra-fine quality of extracted at 9 cts., put up in new 60-lb. cans. My honey took sweepstakes at Nebraska State Fair, 1913.
THOS. ATKINSON, Cozad, Neb.

FOR SALE.—Our crop of "Elite" white-clover extracted honey. None better produced. Also raspberry extracted, blended with willow-herb; nearly as white as the clover; good body and flavor, 8 cts. per lb. Sample of either, free. Address
E. D. TOWNSEND & SONS, Northstar, Mich.
(Formerly at Remus.)

RASPBERRY HONEY for sale.—This honey was left with the bees until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. It is put up in new 60-lb. tin cans. The price is \$6.00 a can. Sample by mail, 10 cts. The 10 cts. may be applied on an order for honey.
ELMER HUTCHINSON, Pioneer, Mich.

FOR SALE.—15 tons Spanish-needle amber honey, good quality, in new 60-lb. cans. Write for price. State amount you want. Sample, 10 cts.

F. W. LUEBECK, Rt. 2, Knox, Ind.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Honey in car lots. If you have or expect to have a car of honey, or if a car can be had in your vicinity, write to us and state your prices, delivered on car at your station.

OGDEN BEE & HONEY Co., Ogden, Utah.

WANTS AND EXCHANGES

WANTED.—150 or more colonies of bees within reasonable shipping distance; ten-frame hives and Hoffman frames desired.

WALLACE K. REESE, Winchester, Ky.

WANTED.—A location in the South; can ship a carload of bees; would lease other bees; don't want to steal any beekeepers' location. Address

BEES, Care A. I. Root Co., Medina, O.

REAL ESTATE

FOR SALE.—A 20-acre farm and 100 swarms of bees.
L. FRANCISCO, Mosinee, Wis.

Correct information about land, etc., in the South. 25 cts. per letter.

C. W. LUDLOW, Sta. B, Chattanooga, Tenn.

FOR SALE.—A two-acre garden tract in city limits. Good house, city water, barn and other buildings. Splendid location for bees, poultry, or dairy; good market; excellent climate, especially for pulmonary troubles. No trade. Price \$3000, part cash.
C. T. CHAPMAN, Canon City, Colo.

NATURE'S TREASURE GARDEN is calling you. Come South and grow with the country. Land \$15 an acre up; cheapest in America; two and three crops grown yearly; ample markets. Living costs low. Climate very healthful and agreeable. Farm lists, "Southern Field" magazine, and State booklets free.

M. V. RICHARDS, Land and Industrial Agent,
Southern Railway, Room 27, Washington, D. C.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices.
THOS. LITZ, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. Co., Greenville, Tex.

In 1912 and '13 our bees wintered perfectly in the Eureka concrete case. Write for circular and learn about them.
B. T. BOSSERMAN, Williamstown, O.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars.
THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—One hand-operated paper-cutter and one check-protector, a device for protecting commercial paper. The last named will be useful in business houses, and the first mentioned will be of use in a small printing establishment. I will sell either at far below cost. Correspondence solicited.

MRS. W. Z. HUTCHINSON, Flint, Mich.

BEES AND QUEENS

Queens by return mail. Mismatched Italians, 40 cts. each or \$4.00 per dozen.

LATSHAW HONEY CO., Carlisle, Ind.

FOR SALE.—50 to 200 colonies, eight-frame, first-class. E. F. ATWATER, Meridian, Ida.

No more rush orders for queens till Sept. 20. Books full till then.

A. J. SEAVEY, Rt. 2, Farmington, Me.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.

JOS. WALRATH, Antioch, Cal.

Fine Italian queens, three-banded, prolific, hardy, gentle. Untested, 75 cts. each; 6 for \$4.25; dozen, \$8.00. J. F. ARCHDEKIN, Rt. 7, St. Joseph, Mo.

The best of untested queens, 75c each; \$8.00 per dozen. Bees by the pound and nuclei for sale. Ask for prices. WM. ATCHLEY, Beeville, Bee Co., Tex.

FOR SALE.—Pure golden Italian queens. Day-old virgins, 50 cts.; untested, 75 cts.; tested, \$1.00. S. H. RICKARD, 506 Machesney Bldg., Pittsburgh, Pa.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address

DEROY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—About 50 more queens to sell; same as advertised before: untested, 75 cts.; tested, 85 cts.; select tested, \$1.00.

J. M. GINGERICH, R. F. D. 3, Arthur, Ill.

Choice virgins, 40 cts. each; 3 for \$1.00; untested, 60 cts.; tested, \$1.25; breeders, \$2.50; Italian or Carniolan. STANLEY & FINCH,

1451 Ogden Ave., Chicago, Ill.

Three-banded Italian queens. Best honey-gatherers. We can fill all orders promptly, rest of season, for 50 cts. each. No disease. Satisfaction, or money back. W. D. ACHORD, Fitzpatrick, Ala.

FOR SALE.—11 colonies of bees in good hives with plenty of honey and fixtures. Must be sold at once. Party making the purchase to inspect and pack them for shipment.

MISS JESSIE M. JOHNSON, Rt. 23, Nashotah, Wis.

For quick sale, 32 colonies of bees, one half in ten-frame Langstroth, one half in Danzenbaker hives, all with ample stores, and with one super for 4 x 5 sections each. No disease. All for \$100.

C. F. BUSHNELL, Gilbertsville, N. Y.

Phelps' Golden combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON,

3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price, \$1.00; 6 for \$5.00.

WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Malvern Hill, Va.

Famous North Carolina bred Italian queens for sale. Plenty of fine queens on hand; good as the best. Up with obligations. Send in your orders. See June and July advertisements GLEANINGS for 1913. Untested, one, 75 cts.; 50, \$25; 25, \$13. Select untested, 50, \$30; 25, \$14; one, 90 cts. Circular free. H. B. MURRAY, Liberty, N. C.

FOR SALE.—After June 20, five Golden Italian queens, 75 cts. each; for \$4.00; few choice breeders at \$3.00 each. Cash with order. Good honey-gatherers. EDWARD REDDOUT, Bx 43, Lysander, N. Y.

FOR SALE.—Large apiary with quantity of extra hives, supers, sections, etc. Immediate sale desired. Low price. For particulars address

J. A. WILLIAMS, Albany, Ga.

Golden and three-band Italian queens from the Golden State. Queens by return mail. No disease. One, 75 cts.; 6 for \$4.00; \$8.00 for 12. Special prices in large quantities. LEMUEL J. DUNN,

14 Garfield Ave., Rt. 6, San Jose, Cal.

Golden and three-banded Italian, also Carniolan untested, 75 cts. each; 3 to 6, 70 cts.; 6 to 12, 65 cts. each. Tested, 1, 1.00; over 3, 90 cts. each. Bees, per pound, \$1.25; nuclei, per frame, \$1.50. No disease here. Every thing guaranteed.

C. B. BANKSTON, Buffalo, Leon Co., Texas.

Queens from Georgia Apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb packed any size to suit customer. Prices and samples sent free. JOHN W. CASH, Bogart, Ga.

MISCELLANEOUS

White and brown ferrets. Stamp for description and prices. JEWELL'S FERRET KENNELS, Spencer, O.

Beagle hounds, pups, and trained dogs; fine stock and fair prices. Photos.

D. S. HALL, Mansfield, Vt.

Single-comb White Leghorns.—\$1.00 each; pullets and cockerels, yearlings and cocks; shipped anywhere. As many as desired. Write for catalog.

WOODWORTH FARM, Wilton, Conn.

WANTED.—To sell Partridge Rock cockerels, price \$3.00; white and gray call ducks, \$3.00 per pair. Will exchange for pullets of any breed, or honey.

W. D. HAMMOND, Marathon, N. Y.

PIGEONS! PIGEONS! THOUSANDS, all breeds; lowest prices; satisfied customers everywhere. Start with our \$\$\$-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

FOR SALE.—Indian Runner ducks. Stock bred from first-prize hen and first-prize drake, Ohio State Fair. Fine birds, and unequalled egg-producers. Guaranteed birds at reasonable prices.

L. G. CARY, Trimble, Ohio.

Pure home-made cane syrup, grown and made by me. This is the pure juice of our Southern cane, boiled to a density of 32 deg. Baume scale. There is nothing added to this juice. My price is \$4.50 per case of six 1-gal. screw-cap cans, f. o. b. Mobile, Ala. JOSEPH S. SCOTT, Mt. Pleasant, Ala.

NEED WINTER APPLES? Three bushels assorted Rambo, Baldwin, Greening, Pippin, Seek-no-further, etc., fine sprayed fruit, for \$3.00. Smaller grade for \$2.50. Extra fancy, finest ever, \$5.00. Give shipping directions.

C. WECKESSEE, Doylestown, Ohio.

YOUNG MAN, would you accept and wear a fine tailor-made suit just for showing it to your friends! Or a slip-on raincoat free! Could you use \$5 a day for a little spare time? Perhaps we can offer you a steady job. Write at once and get beautiful samples, styles, and this wonderful offer.

BANNER TAILORING CO., Dept. 529, Chicago.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913: beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

POWER-PLANT RENEWED.

We have installed a new 150 H.P. water-tube boiler, and are resetting our 300 H.P. boiler in a new location as two 150 H.P. units, so arranged that we can use any two of the three while the third is being cleaned. By this arrangement we shall have no further need of shutting down the plant during the busy season for cleaning boiler. While we are resetting the old boiler we are short of steam capacity to run the engine on full load, and are somewhat handicapped for a few weeks in turning out stock in the wood-working building. We are securing extra power from the trolley line to help us out. We will also install a new engine in November, replacing the one which has carried our load for fifteen years.

REVISED PRICES ON BEEHIVES AND SUPPLIES.

As we go to press we are printing our revised prices, which will be mailed on application to those interested. We have adopted as our regular cover on the Dovetailed hive the metal-top flat cover which telescopes over the hive about 2½ inches in connection with a super cover designated as Rc. This being a more expensive cover adds about 20 cts. each to the price of each hive, in addition to an advance of about ten per cent. There has been an increase in price of hives, frames, section-holders, fences, separators, shipping-cases, feeders, cages, and a number of small articles. Sections are advanced 25 cts. per 1000; comb foundation, 3 cts. per lb.

An early-order cash discount of six per cent will be allowed from the new prices for cash orders during the month of October, covering a general line of bee supplies. This discount will not be allowed on orders for glass and tin honey-packages, labels, printing, cartons, booklets, bees, and queens. Where such items form less than twenty per cent of a general order the discount may be taken from the entire order.

SPECIAL NOTICES

A. I. ROOT

OFF FOR FLORIDA.

On Nov. 4, after I have cast my vote, Mrs. Root and I expect to go back to our Florida home. I give the notice thus early, so the friends who are writing me may know where to direct. Now, I hope you will excuse me for saying once more, when I get away from our office here with all its up-to-date paraphernalia, I can not write you long letters, as I have been doing all summer. Of course, I shall have a dictaphone; but the cylinders for it will have to be sent by express to Medina, to be made into type-

written letters. On this account let me ask you once more, if you want an answer to your letter, inclose an *addressed* postal card. Every little while somebody sends me a common blank postal card. Now, I can buy these anywhere for a cent apiece. I do not want postal cards nor postage stamps. I want you to write your own address, for nothing wears me out like trying to make out a scrawled name, and then hunting the letter all over to find where the writer lives. I think it an excellent plan for every man and woman (and I should like to say child) to have some printed postal cards with name and address printed on said cards. Then when you want to ask somebody a question, inclose one of these printed cards. In that way you may be sure of getting an answer of some kind straight back; for the recipient, while he is in the office getting his mail, can take a pencil, and oftentimes answer you in a few words, and sometimes a few words right off quick are worth a few dollars. You will notice when I am writing you for something I want, I inclose such a postal with my address on it. Now, one reason why I say *postal card* is because this is an age of "boiling down" things. You can put a great lot on a postal card and have it readable if you take a little pains. If you do not use a pen, use a good sharp pencil—one that will mark *black*. Skip all preliminaries, and just hustle right into your subject. Say what you think will be helpful, and then stop. If you wish, you might add something like this: "Your old Friend," A. I. ROOT.

Kind Words from our Customers

The case escapes are received. They look good to me. It saves the brood and a bad mess.
Ottawa, Ill., July 25. P. M. CORDON.

500 BABY CHICKS, ETC.

I got 500 "baby chicks" this spring (White Leghorns), and have now about 280 promising pullets. I raised all but eight per cent of the 500. Not having money to buy material for brooders I took most of the material out of cedar logs.

Your religious articles I enjoy greatly. I want to thank you with heart and pen (I wish I could do it with hand and mouth too), for your persistent fight for truth and righteousness, spiritual and social. We may not always see the fruits of our good endeavor; but the influence exerted will be counted in eternity, and the reward for every good deed will not fail to come. May God strengthen you and give you a long and blessed work day, and at last a glorious entrance into the mansions above. May he keep our hearts clean from partiality in these troublesome times.

Yours in the Lord,

Lawrence, Wash., July 30. E. A. LARSEN.

BRIBERY AND TAKING BRIBES, ETC.

Being a recent subscriber to your bee magazine, I wish to express my appreciation of the journal as a whole and of the Our Homes department in particular. My father, while a beekeeper in Iowa, was a subscriber to GLEANINGS, and I enjoyed reading every line in it, and knew where to find Our Homes. Well, one sabbath day I visited a neighboring beekeeper who also was a subscriber; and, picking up a copy of GLEANINGS, I turned to the back of the book, and, while reading, my neighbor noticed me with GLEANINGS and inquired what I was reading.

"I am reading GLEANINGS."

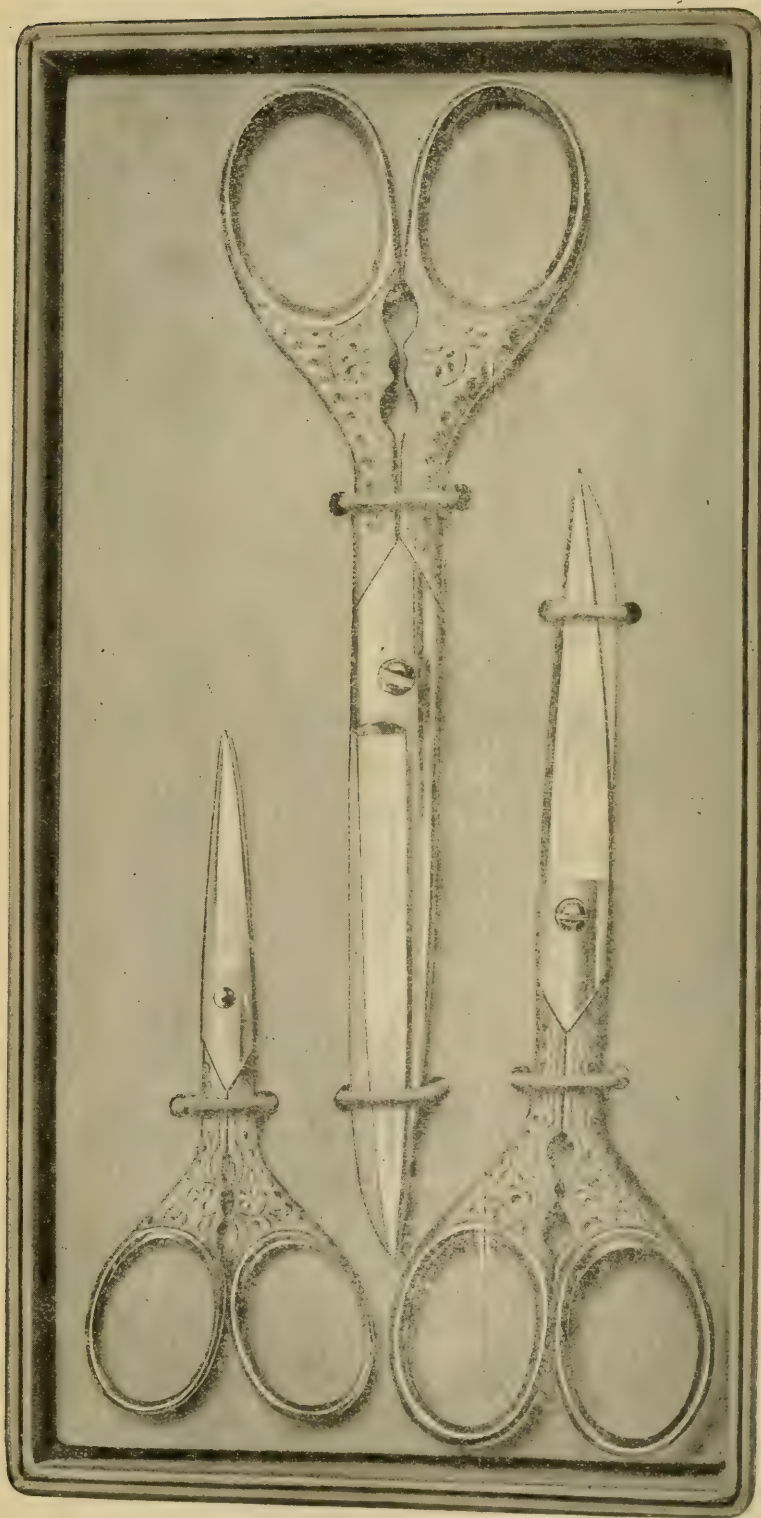
"Do you consider that sabbath reading?" was his next shot.

I made no answer, but laid the book aside while I inwardly wondered, "Does the man know what the book contains?"

Well, I had been reading an article by A. I. Root, "Bribing and Taking Bribes" the subject was, and pictured a salesman making inducements to the foreman to use his company's ink in the printing department. Now, that was good moral advice and sound business principles; and the lesson given there "stuck" in one mind at least, and perhaps the rebuke helped to fasten the lesson ineffaceably on my memory. I am thankful that these articles are still coming, and am not averse to having any member of the family read these splendid thoughts on any day of the week.

Boulder, Colo., July 5.

E. C. BIRD.



This set is made up of a pair of six-inch, a pair of five-inch, and a pair of three-and-one-half-inch embroidery scissors with nickel-plated and polished blades. Elaborately designed gold-plated handles. The three pairs of scissors in the set are mounted on a card and packed in a lined box. List price of scissors, \$1.00.

PREMIUM OFFER

We will send one of these sets of scissors postpaid to any reader who sends us one new yearly subscriber to GLEANINGS IN BEE CULTURE at \$1.00 per year, or the same for four new six-months trial subscribers at 25 cents each.

THE A. I. ROOT COMPANY, MEDINA, OHIO

NO. 501 SET OF QUALITY KNIVES

OUR set of "QUALITY" KNIVES is made up of one 8-inch SLICER, one 6-inch BUTCHER, and one 3½-inch PARING-KNIFE. A combination of three of the MOST USEFUL SIZES and DESIGNS that one can have in his home. In presenting this set of knives we want to impress upon the trade the fact that these knives are all their name implies, **QUALITY IN THE STRICTEST SENSE OF THE WORD.** There is nothing better in the way of cutlery to be had for **IT IS IMPOSSIBLE TO MAKE ANY THING BETTER.** The Set is **MADE UPON HONOR THROUGHOUT** to the MINUTEST DETAIL. **BLADES** are of the VERY BEST TEMPERED CRUCIBLE STEEL, SWEDGED, ETCHED, and FINISHED with the Highest Polish it is possible to put on metal. Handles are **GENUINE COCOBOLO**, Beveled Edges, Through Tang with Three Large Brass Saw Rivets. We **ABSOLUTELY GUARANTEE** the QUALITY of this set of knives to be Strictly First Class in Every Way and the **BEST VALUE EVER OFFERED.** **LIST PRICE** the set \$1.00 postpaid.

PRICE
\$1.00
PER SET
POSTPAID



Premium Offer

We will send this complete set of knives postpaid to any reader who sends us one new yearly subscriber to Gleanings in Bee Culture at \$1.00 per year, or the same for four new six-months-trial subscribers at 25c. each.

The A. I. Root Co.
Medina, Ohio

No. 501 Set of
Quality Knives

Containers for Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. Special attention is directed to our assortment of Friction-top Pails and to tin cans of ½, 1, and 5 gallon capacity. Get full information, prices, and samples.

The A. I. Root Company, Medina, Ohio.

Cash for your Honey at your door

The committee in charge of the Honey-Producers' League Fund has \$604, to be used in advertising uses of honey, and to create more demand for honey. They have purchased several thousand books entitled "The Use of Honey in Cooking," with chapters on "What is Honey?" "Food Value of Honey," "How Comb and Extracted Honey is Produced," "Why Honey Granulates, and How to Liquefy the Same;" "Why Different Flavors of Honey from Different Flowers;" "Why Use Honey in Cooking in Place of Sugar;" "Where to Keep Honey," and over one hundred recipes for the use of honey in cooking, candies, cough syrups, creams, and soaps—58 pages of valuable information.

If you want a home market for more honey than you produce, get some of these recipe books and use judgment in giving them to those you believe will use honey for table and cooking, asking each to give it a trial.

I have talked with beekeepers of several States who have been thus using these books for their customers, and who now have to buy honey to finish filling orders. To get these books before consumers I will GIVE them to beekeepers and members of the National Beekeepers' Association who may ask for them, provided they will pay postage on the books ordered, and who will, in application, state the number of colonies of bees they had in the spring of 1913, and pounds of comb and extracted honey produced this season, and prices they are selling at.

Postage on the books is 68 cts. for 100 copies. Other lots in proportion. If beekeepers want a growing home market for all their honey, here is a chance to get it for nothing. When this one lot of books is gone, others getting them later will have to pay publishers for them \$4.50 per 100 copies.

N. E. FRANCE, Platteville, Wis.

Chairman of League Fund Committee



The Countryside Magazine

SUBURBAN LIFE

THE call of the countryside was never stronger than today. From the city to the country is the present trend of population, as our cities become more and more impossible for family life. For nine years SUBURBAN LIFE, The Countryside Magazine, has filled an important place in magazine literature in that it has provided a periodical devoted to the needs of those who love the country for the country's sake, and who recognize that a home means more than a house with a 25-foot front lot.

It is quite generally conceded to be the best printed magazine in America, and its illustrations and color work are the finest obtainable.

Half-Price Trial Offer

The price of SUBURBAN LIFE, The Countryside Magazine, is 25 cents a copy and \$3.00 a year, but in order to introduce it to the readers of this magazine, many of whom have never seen it, we will enter your order for

Four Months for 50 Cents

This offer is made with the understanding that it may be withdrawn any time at our pleasure after 30 days, so if you desire to obtain a four-months' subscription to this beautiful magazine at one-half price, representing only about the cost of the paper and postage, it would be well for you to fill out this coupon and send it to us by return mail.

THE SUBURBAN PRESS

Circulation Department, 334 Fourth Avenue, New York, N. Y.

Cut this out and mail today with 50 cents

The
Suburban
Press

334 Fourth Ave.
New York City

For the enclosed 50 cents, please send SUBURBAN LIFE for four months to the following address:

NAME _____

ADDRESS _____

Average Yield 100 lbs. per Colony

WHEN you subscribe for a newspaper or a magazine do you consider first the cost or whether it will be worth all its costs and more in the returns it will bring you?

"Gleanings in Bee Culture" has tried for years to be interesting and entertaining, and all the while to publish matter that is really **VALUABLE**—that will return to its subscribers many times over the subscription price. The following letter is to the point:

CORNER STONE, ARK., Sept. 19, 1913.

THE A. I. ROOT CO:—Look me up and see if my subscription to GLEANINGS has not expired. I have been a busy man this year; in other words, I have had a good many irons in the fire.

I am a "counter-hopper," salesman by trade, and my side lines have been bees, truck-growing, and chickens. You will, therefore, please excuse if I have been tardy in remitting. You have never missed sending a number; so if my time is out, I thank you for your kindness, and I will try to be more prompt in future. I think nearly as much of GLEANINGS as I do of my banner colony. But it would not have been a banner one, I am sure, if it were not for A B C and GLEANINGS, and to these two I attribute my success.

This is my third year with bees; and as A B C says go into the honey business on the tiptoe, I have followed its advice and built up from two to twelve colonies. Next season I will branch a little.

We have 2400 acres under cultivation here, all cotton, so you will readily see that cotton is my honey-plant. Well, there are a few fruit-trees scattered around, and a little clover in places that the plow can't reach, that help out in early spring; but if any one were to ask from what source my bees get their nectar I would point with a proud finger to the millions of cotton blooms.

From my twelve hives, to date, I have taken off 961 lbs. of comb honey, an average of $80\frac{1}{2}$ lbs. I shall have 200 more pounds to take off by October, which will raise my average to $96\frac{3}{4}$ lbs.; and if I were to return all unfinished sections and apply the feeders, I feel sure that my colony average would be considerably over 100 lbs. Now, I do not know, but it strikes me that I have made my bees do pretty well, and the drouth we have had too was against me to a certain extent.

The Danzenbaker hive is the hive here for the production of comb honey. I have tried other makes, but they all slip a cog somewhere, though every thing is seemingly all right.

Enclosed will find \$2.75. Send me a new A B C, continue GLEANINGS, and an additional 25 cts. to pay exchange on my check.

Yours, S. W. BOSWELL, JR.

Subscription \$1.00 per Year

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture



VOL. XLI. OCT. 15, 1913, NO. 20.

EARLY-ORDER CASH DISCOUNTS

Apply Here just as they
do at the Factory

As Southwestern distributors of **ROOT'S BEEKEEPERS' SUPPLIES**, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our beekeeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous goods, and the prices in our special catalog are the same as their own. There is an extra saving for you in ordering from us—**FREIGHT**. Better give this your special attention before ordering from elsewhere.

THE CASH DISCOUNT ON EARLY ORDERS PLACED IN OCTOBER IS 6 PER CENT.

This applies to every thing in the way of beekeepers' supplies except a few special articles. On large general orders we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

REMEMBER WE MANUFACTURE THE FAMOUS WOOD PROCESS COMB FOUNDATION.

We have a large demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 6 per cent.

Toepperwein & Mayfield Co.
San Antonio, Texas

LEWIS BEEWARE MEANS

GOOD QUALITY, SCIENTIFIC WORKMANSHIP
CAREFUL PACKING
EFFICIENT SERVICE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

"falcon" Bee Supplies.

Shipping-cases, Extractors, Hives, etc. Everything for the Beekeeper. Inventory Sales.

SUPPLIES FOR 1914—Take inventory of supplies now and figure what you will need for a slim season. Get them ready at odd times in the winter; and if there is a good season you will have ample time to reorder in April and get them for use. We like to make "Inventory Sales" of "Falcon" supplies, for we know that we are dealing with an up-to-date beekeeper.

INVESTMENT—What is the investment of an extra \$25.00 in supplies to the loss of 500 pounds of honey? Resolve to change for 1914, and buy "Falcon" supplies now.

EARLY-ORDER DISCOUNT—For "Falcon" hives and supplies bought now we give an early-order cash discount equal to 12 per cent per year. You see it pays for a strictly money basis. Write for early-order discounts, and send list of wants for quotation.

"FALCON" QUALITY—In making our beehives, all of our waste lumber is made into cheap toy building-blocks, so that we are able to put better material in our hives and goods. Get a trial lot this fall so that you can see for yourself, and still have time to order 1914 supplies.

FREE SAMPLES of our famous "Falcon" foundation, made in our factory at Falconer, N. Y., cheerfully sent postpaid with copy of catalog, and name of nearest dealer if desired.

W. T. Falconer Manufacturing Company, Falconer, New York

Where the good beehives come from

The Western Honey Bee

is making good as the result of organized co-operation in the West. Our contributors write about colonies of bees by the hundreds, and honey in car lots. Be one of our family, and help us and yourself by subscribing and writing for the W. H. B. \$1 a year. Sample free. **ADVERTISERS** get results for money spent with us. Rates on application. California State Bee-Keepers' Association, owners.

Business Office Address

The Western Honey Bee

Covina, California.

WANTED!

NEW CROP HONEY
New York and Pennsylvania

COMB

ESPECIALLY

Write us, stating quantity, quality, style of sections, when ready for shipment, etc. Will buy or handle on commission.

Hildreth & Segelken, New York

265-7 Greenwich St.

82-86 Murray St.

HOW FAR CAN A BEE

SEE?

That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think! The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. 10c a single copy.

Edward F. Bigelow, Editor,

The Agassiz Association, Inc.

ARCADIA:

Sound Beach, Connecticut

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time"
It Pays to Buy **LEWIS BEEWARE**—Always the Same—Always Standard

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached on all sides and evenly capped, except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood. Wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and en-

tirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb, 16 to 17; white extracted, 10 to 11. Beeswax, 30. There is an active demand for white comb honey. Boston, Oct. 2. **BLAKE-LEE CO.**

ZANESVILLE.—The demand for honey continues active and firm. Best grades of white-clover comb we quote at 18 to 20 cts. wholesale; in a jobbing way, 17 to 18. Best white extracted in 60-lb. cans is quoted at 11 cts. down to 9½, according to quantity. For beeswax of good quality, producers receive 32 cts. in trade, 30 cts. cash. Zanesville, O., Oct. 2. **E. W. PEIRCE.**

DENVER.—We quote No. 1 white comb honey at \$3.05 per case in a jobbing way; choice at \$2.88, and No. 2 at \$2.70; white extracted at 8 to 9; light amber, 7 to 8; strained, 6 to 7. We pay 26 in cash and 28 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION. Denver, Sept. 26.

CINCINNATI.—The demand for both comb and extracted honey is not as brisk as it should be for this time of the year. We are receiving quantities of comb and extracted honey. Fancy white-clover comb honey is selling at 16; No. 1 white is selling at \$3.50 per case of 24 sections. Off grades do not sell. White-clover extracted honey in 60-pound cans is selling from 9 to 9½ cts. per lb. Amber grades are selling from 7½ to 8½ cts. per lb., according to grade and quantity purchased. Beeswax is selling from \$33.00 to \$35.00 per cwt. The above are our selling prices, not what we are paying.

Cincinnati, Oct. 3. **C. H. W. WEBER & CO.**

Honey reports continued on page 5.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT

Editor

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE. E. Bondonneau, 120 Avenue Emile Zola.

Per year, postpaid, 8 francs.

GOODNA, QUEENSLAND. H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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Honey reports continued from page 2.
INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cts. in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cts. cash or trade. Indianapolis, Oct. 2. **WALTER S. POWDER.**

SCHENECTADY.—Comb honey is coming forward more freely. The white is of inferior quality, and ordinarily would be rejected by a customer; but on account of scarcity it is quickly taken at 13 to 15 cts. We have no No. 1. Buckwheat is of better quality, and sells at about the same price as this so-called white. Extracted light brings 9 to 9½; dark, 7½ to 8. Schenectady, Oct. 2. **CHARLES MACCULLOCH.**

ALBANY.—Our honey market experiences light receipts with good demand. The crop in this vicinity is very short. We quote white comb at 16 to 18, according to style, etc.; mixed or No. 1, 15 to 16; dark amber or buckwheat, 14. Extracted white, 9½ to 10; off color, 8½ to 9; amber and dark, 7½ to 8. Prices of honey are high, considering the low prices prevailing on other sweets. We strongly advise early marketing for best prices. Beeswax, 30 to 32. Albany, Oct. 4. **H. R. WRIGHT.**

NEW YORK.—New crop is now beginning to arrive quite freely. The demand is good for all grades, and we quote fancy white at 16, and some especially fine lots will bring 17; No. 1 white, 14 to 15; No. 2, 13; mixed, dark, and buckwheat, 11 to 12. Extracted is in fair demand, with sufficient supply of all grades excepting California sage. We quote white clover at 8 to 9½, according to quality; light amber, 7½ to 8; dark, mixed, and buckwheat, at 7 to 8; Southern in barrels, as to quality, 70 to 80 per gallon. Beeswax is steady at 32. New York, Oct. 2. **HILDRETH & SEGELKEN.**

CHICAGO.—The market during the past two weeks has been more active, and has nearly kept pace with the receipts; but the accumulations of the previous four weeks or more are, many of them, yet unsold. The white grades of comb honey range at from 16 to 17 cts. per lb. for A No. 1 to fancy; but the majority of the receipts sell at from 15 to 16. The amber grades range from 1 to 3 cts. per lb. less. Extracted honey is also quiet, with the white grades bringing from 8 to 9, and the ambers from 7 to 8, according to kind and quality. The weather and season of the year are now favorable for the outlet of honey; and were it not for the large offerings, the quality of the crop should command even higher prices than now prevail. Beeswax is steady at from 30 to 32, according to color and cleanliness. Chicago, Ill., Oct. 6. **R. A. BURNETT & CO.**

ST. LOUIS.—The demand for both comb and extracted honey in this market is still improving, and will continue to do so as the weather gets cooler. The receipts of extracted honey are equal to the demand. There is no material change in our quotations since our last writing, and we can still quote extracted honey in barrels and half-barrels at 6 to 6¼; in five-gallon cans, 6½ to 6¾ cts. The receipts of new comb honey are coming in quite freely, and we quote fancy white comb honey at 15 to 16; No. 2, 14 to 15; light amber, 12 to 14; fancy white by the case, \$3.00 to \$3.25; amber from \$2.50 to \$3.00, according to the quality and color. Dark and broken comb honey, or combs but partly filled, are almost unsalable. Beeswax is in good demand, and is quoted at 32 cts. for prime; inferior and impure sells for less. St. Louis, Mo., Oct. 6. **R. HARTMANN PRODUCE CO.**

HONEY COMB AND EXTRACTED

We buy and sell, carlots or less.
Honey producers of the Pacific States get in touch with us. . .

LEUTZINGER & LANE

420 to 424 Front Street, San Francisco, Cal.

Out-of-town Depositors

We have many out-of-town depositors. They send their accounts by mail. You also can carry an account with this strong bank, receiving 4 per cent interest on your savings.

Banking by Mail is a special department, and your deposits are assured absolute protection by our large capital and surplus.

The SAVINGS DEPOSIT BANK COMPANY

Medina, Ohio

Assets Over \$1,000,000



THE 'BEST' LIGHT

MAKES and burns its own gas. Produces 100 candle power light—brighter than electricity or acetylene—cheaper than kerosene. No dirt. No grease. No odor. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
306 E. 5th St., Canton, Ohio

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED SEMI-MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

Editor, A. I. Root, Medina, Ohio; Managing Editor, E. R. Root, Medina, Ohio; Business Manager, J. T. Calvert, Medina, Ohio; Publisher, The A. I. Root Co., Medina, Ohio.

Owners: The A. I. Root Co. Stockholders holding 1 per cent or more stock as follows:
A. I. Root, Medina, Ohio; E. R. Root, Medina, Ohio; H. H. Root, Medina, Ohio; Susan Root, Medina, Ohio; J. T. Calvert, Medina, Ohio; A. L. Boyden, Medina, Ohio; L. W. Boyden, Medina, Ohio; A. A. Bostwick, Seville, Ohio; Mrs. Fannie Curtis, Medina, Ohio; Mrs. C. W. Geckler, Valley City, Ohio; P. W. Himelspaugh, Mallet Creek, Ohio; Thos. Shaw, Medina, Ohio; Frank Spellman, Medina, Ohio; R. W. Turner, Medina, Ohio.

(Signed) E. R. Root.

Sworn to and subscribed before me this 30th day of September, 1913.

(Signed) FRANK SPELLMAN.

[Seal.]
(My commission expires Feb. 24, 1914.)

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

A. L. BOYDEN, Advertising Manager.

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

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Cash-in-advance discount, 5 per cent.

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Bills payable monthly.

No medical or objectionable advertising accepted.

Column width, 25 $\frac{1}{8}$ inches.

Column length, 8 inches.

Columns to page, 2 (regular magazine page).

Forms close 10th and 25th of each month.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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A 77-year-old Subscriber Renews for Three Years

When Mr. P. B. Bromfield, President of the Bromfield & Field Advertising Agency, of New York, said to the writer some time ago, "I would rather have a circulation such as GLEANINGS IN BEE CULTURE has, in a paper with a definite aim and field, than one with many times the circulation which is obtained with the aid of premium inducements or a low price, and which has no purpose nor special reason for existence." He probably had reference to a certain class of readers of which the following are examples:

CLARKS GREEN, PA., Sept. 18, 1913.

The A. I. Root Co,
Medina, Ohio.

Dear Sirs:—

Enclosed find check for \$2.00 to renew subscription to GLEANINGS for three years. One year comes around so soon I thought I would renew for three, as it is one of the periodicals that I read almost entirely every number. I was 77 years old yesterday, and hope to live to renew at the end of the three years.

Yours truly,
JOHN R. COLVIN.

DEPARTMENT OF MATHEMATICS,
INDIANA UNIVERSITY,
BLOOMINGTON, INDIANA.

Sept. 17, 1913.

Gentlemen:—

I enclose check for \$2.00 for GLEANINGS IN BEE CULTURE for three years (this is your offer, I believe). Let subscription begin Sept. 1.

Very truly,
D. A. ROTHROCK.

The writer of the last letter, Mr. D. A. Rothrock, is one of that numerous class of business and professional men taking up beekeeping as a side line or hobby. Mr. Colvin, on the other hand, has been a subscriber for nearly thirty years. On November 10, 1910, he wrote us, when renewing his subscription: "I have taken GLEANINGS for twenty-five years or more." The statement made by Mr. Bromfield, as well as the representative letters above quoted, explain why numerous advertisers get such excellent returns from space used in GLEANINGS IN BEE CULTURE.

We shall be pleased to give definite information relative to circulation, rates, etc., to any interested party.

The A. I. Root Company, Pub'rs
Medina, Ohio



**"If Goods are wanted Quick,
send to Pouder."**

Bee Supplies!

A bounteous crop of finest quality honey has been secured, and, resulting from the needs of beekeepers in supplies, I have experienced the busiest season that I have ever known. The demand for the Root Goods has been excessive, and I have been very fortunate in keeping my stock complete and filling orders promptly. To do this my helpers and myself were required to apply ourselves from fifteen to eighteen hours per day. We were, of course, glad enough to do this, but I am going to offer some attractive discounts for supplies to be used next year if ordered early, and this will reduce the task of having so much to look after at the busy season. I believe the discounts will be a mutual benefit to all concerned. I am always glad to quote lowest estimates on any list of goods.

A feature on which I am now specializing is sending goods by parcel post. If you are within 150 miles of Indianapolis I can have your goods delivered to your home at a very moderate cost, if the package doesn't weigh over 20 pounds.

MONONGAHELA, PA.

Walter S. Pouder, Indianapolis.

Dear Sir:—Comb honey arrived in excellent condition, and I am highly pleased with quality of the honey. I will say a good word about your business, and I appreciate your promptness and careful methods.

Yours,

EDWARD MAYHUGH.

Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

6 Per Cent**6 Per Cent**

The Discount for cash orders received in October is 6 per cent off the new schedule of prices. Buy now and save money. We will be pleased to quote you net prices at your request. . . . Beeswax wanted.

M. H. Hunt & Son

Lansing, Michigan

Opposite Lake Shore
Depot

General Agents for Root's
Goods in Michigan

6 Per Cent**6 Cent Per**

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

IF YOU USE

bee supplies you should have our catalog.

We sell the best No. 25 jar made.

Heavy cartons that protect honey.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Aplaries, Glen Cove, L. I.



Established 1885

We carry an up-to-date
line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor. G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

Root's Shipping Cases for Honey

We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. . . . NEW 60-POUND CANS, two in a case, a specialty. . . . FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.
"Griggs is always on the job."

Inventory Season is Here

I am just completing my inventory of Root's Bee Supplies on hand at my Syracuse warehouse, and my stock orders for 1914 goods will be sent to the factory at Medina in a few days. If any customer or any beekeeper of New York State desires special goods I shall be pleased to send in the order to come with one of my cars to Syracuse.

I take this opportunity to thank my customers for their liberal patronage the past season, and solicit a continuance of the same.

October Discount, 6 per cent from Revised (Oct. 1) Prices

F. A. Salisbury, Manager, Syracuse, N. Y.

HAVE YOU SEEN IT?

. . THE . .

NEW American Bee Journal

IT PLEASES

FRIEND DADANT:—Say, do you folks know that the Old Reliable is just more than forging to the front?
Yours truly,

Lansing, Mich., Feb. 9. A. D. D. Wood.

NEW Editor NEW Cover NEW Manager

Select Material

Illustrated

Free Sample Copy

\$1.00 a Year

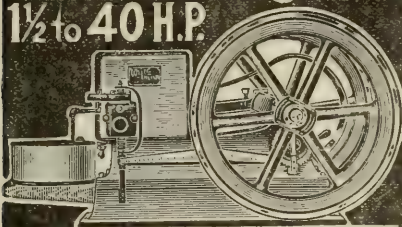
C. P. DADANT

DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

WITTE Engines

1½ to 40 H.P.



Cost Less!—Worth More!

Use Gasoline, Gas, Kerosene and Distillate

Here's my new offer, **direct** from factory to power users everywhere. **No dealer's profits.** Think of it! The **highest** standard engines for the **lowest** prices. Nobody else has these two things to offer together.

60 DAYS FREE TRIAL

WITTE engines have set the quality standard for 27 years. Better today than ever. 1½ to 40 H-P. stationary and portable sizes. All have detachable cylinders, vertical valves, four-ring pistons, electric ignition and other exclusive merits, without which no engine can now be high-grade.

On the WITTE you don't even have to press a button to start. Don't be satisfied with any out-of-date engine. Don't risk any untried, new fangled devices with high-falutin' names. Let me show you,

How to Judge Engines

My new book shows the secrets. All made plain as A. B. C. It gives my 5-year guarantee and 60-day free trial plan. Tells you how to be safe in your engine selection, even if you don't pick a WITTE. It took me 27 years to write it, but you can get it quick—just send me your name.

ED. H. WITTE, WITTE IRON WORKS CO.
1935 OAKLAND AVE.,
KANSAS CITY, MISSOURI.

BETTER LIGHT from KEROSENE

Beats
Electric
or
Gasoline



TEN DAYS
FREE
SEND NO MONEY

Without sending a cent you can use this wonderful, economical light 10 days free, then return at our expense if not satisfied. Gives powerful white incandescent light, burns over 60 hours on one gallon kerosene (coal oil). No odor, smoke or noise, simple, clean, won't explode. Guaranteed. We want one person in each locality to refer customers to. Write for 10-DAY FREE TRIAL. AGENTS OFFER—agents' wholesale prices and learn how to get ONE FREE. WANTED. Make money evenings and spare time. One farmer cleared over \$500 in 6 weeks. Exclusive territory given.

MANTLE LAMP CO., 360 Aladdin Bldg., Chicago, Illinois

Detroit Kerosene Engine

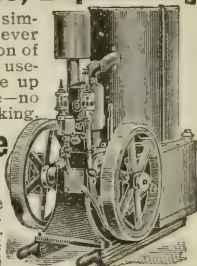
Saves Time, Trouble, Expense

The Detroit Kerosene Engine is the simplest and most powerful engine you ever saw or heard of. Direct transmission of power with 3 moving parts only—no useless cams, gears or valves to take up power or get out of order. No trouble—no extra expense. Starts without cranking.

Runs on Cheap Kerosene

Will run on distillate and gasoline; but kerosene costs less than half as much as gasoline. Besides, kerosene contains more heat units than gasoline. Result—more power—steadier power—at one-half the expense of fuel. Comes to you all ready to run feed grinders, separators, pumps, saws, electric light plants, etc. All sizes in stock ready to ship.

GUARANTEED 5 YEARS—Sent on trial direct from our factory at lowest factory prices. Don't buy an engine until you have seen the "Detroit." Write today for catalog and agent's special introductory price on first order from your territory. (1899)
DETROIT ENGINE WORKS, 373 Bellevue Avenue, Detroit, Mich.



Save \$5 to \$40 8 Months to Pay

Get factory prices on Kalamazoo Stoves—**30 Days' Free Trial** A Year's Approval Test and \$100,000 Bank Bond Guarantee.

A Kalamazoo And Gas Stoves Too
Trade Name Registered Direct to You

Cash or Easy Payments—400 Styles

Fine base burners—glass oven door ranges—all kinds and all styles, with latest improvements. Nowhere can you find better quality—over 250,000 buyers prove it. Orders filled, freight paid, the day they arrive. Mail a postal card for catalog No. 416

Kalamazoo Stove Co., Mfrs., Kalamazoo, Michigan

MAKE HENS LAY

By feeding raw bone. Its egg-producing value is four times that of grain. Eggs more fertile, chicks more vigorous, broilers earlier, fowls heavier profits larger.

MANN'S LATEST MODEL Bone Cutter

Cuts all bone with adhering meat and gristle. Never clogs. **10 Days' Free Trial.** No money in advance.

Send Today for Free Book.

F. W. Mann Co., Box 37, Milford, Mass.



WRITE FOR REDUCED FACTORY PRICES

QUAKER CITY FEED MILLS

46 years standard. Get our FREE TRIAL, freight paid offer. Mills grind cob meal; also finest table meal—25 styles—hand power to 20 H. P. Ask for catalog, prices, mills and standard Farm Supplies.

THE A. W. STRAUB COMPANY
Dept. R3748—60 Filbert St., Philadelphia, Pa.
Dept. G3768—11 So. Ashland Ave., Chicago, Ill.



GET TOP NOTCH PRICES **BY** USING LEWIS SECTIONS AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.



THE
Coward
Good Sense
Shoe

Built on natural-foot principles which provide proper foundation for the growing foot-structure. The shoe acts as a pivotal part of the foot, relieving muscle strain, while giving helpful support to arch and ankle. Almost a specific for falling arch and "flat-foot."

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 30 years.

FOR CHILDREN, WOMEN AND MEN.

Send for Catalogue. Mail Orders Filled

Sold Nowhere Else.

JAMES S. COWARD
264-274 Greenwich St., near Warren St., New York

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey:

ALFALFA,	PALMETTO,
SWEET CLOVER,	ORANGE,
WHITE CLOVER,	LIGHT AMBER,
ALSIKE CLOVER,	DARK AMBER,
BASSWOOD,	BUCKWHEAT.

We have some very fine lots of Ohio, Michigan, and Wisconsin WHITE-CLOVER COMB HONEY. For those who have not secured a good crop, and are wanting some fine lots for their trade, we can furnish them any desired quantity.

Write for our special prices.

The A. I. Root Company
Medina, Ohio

"SCALECIDE"

TRADE MARK REG. U. S. PAT. OFFICE

DON'T NEGLECT FALL SPRAYING. GET READY NOW.

Many trees can be saved that would die before Spring if unsprayed. "SCALECIDE" will *positively destroy San Jose and Cottony Maple Scale, Pear Psylla, etc., without injury to the trees.*

Many of the finest orchards in the country have been sprayed with "SCALECIDE" for the past eight years, producing record crops and prize winning fruit. It costs less to spray with "SCALECIDE" than Lime-Sulfur, and does better work. We stake our reputation on this assertion. Write today for our booklet, "Scalecide, the Tree Saver." Sent free on request.

Our Service Department furnishes everything for the orchard at money-saving prices. Tell us your needs.

B. G. PRATT CO., Dept. 6, 50 Church St., New York City.

THE RANGE THAT BAKES

The IMPERIAL
is the only range with
Stone Oven Bottom
A Perfect Baker
"No-Odor" Hood
Dustless Ash Sifter
Saves $\frac{1}{2}$ fuel and $\frac{1}{2}$ labor.
Try it in YOUR OWN HOME—
30 days—no expense to you.
Freight prepaid—Credit if
desired. No Dealers' Profits.
Write today for free book
The Imperial Steel Range Co.
240 Detroit Ave., Cleveland, O.

LIKE MOTHER BAKED



Ruby FREE

To introduce our **Genuine Maztec Gem** (U. S. Letters Patent)—the only satisfactory substitute for the diamond that stands all tests and has permanent dazzling brilliancy, we make this special offer:

If you will mention this advertisement and send us 5 two-cent stamps for our beautiful Art Catalog "The Story of the Maztec Gem," we will send you free with catalog a genuine uncut Navajo Ruby (sells at \$6c.) bought by us from Navajo Indians, together with a cost-price offer for cutting and mounting.

Write today: **FRANCIS E. LESTER COMPANY**
Dept. 620, Mesilla Park, N. Mex.

"MENDETS."

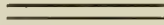
Mend all leaks instantly in granite ware, tin, copper, brass, cooking utensils. No heat, solder, cement, or rivet. Fit any surface. Perfectly smooth. Wonderful invention. Household necessity. Package, assorted sizes, 25 cts. postpaid.

F. PATERSON, Box 4217, Germantown, Pa.

SHIPPING - CASES

IT is poor economy, usually, to attempt a small saving in buying cases for Fancy and No. 1 honey by ordering the cheapest. Carloads of fine white honey will be sold this fall at less than its real worth because the producer puts it up in cheap inferior cases. Honey put up in our cases often brings 5 cents or more per case extra, while they cost but little more than poorly made cases of cheap lumber.

Viewed from a business standpoint, Root's shipping-cases are an investment--not an expense. See our catalog for particulars.



The A. I. Root Co.,
Medina, Ohio

New York, Chicago, Philadelphia, Washington, D. C.,
Des Moines

Also Stocked by Leading Dealers throughout the East

SOME REASONABLE SUGGESTIONS.

Bee-escapes,
Honey-extractors,
Uncapping-knives,
Shipping-cases,
Glass Jars,
Honey Labels,
Veils, Smokers,

Bee-brushes,
Wax-presses,
Hive-tools
Tin Cans.
Cartons.
Bee Books,
Gloves.

You are doubtless in need of and ready to order one or more of these items. You want ROOT QUALITY and PEIRCE SERVICE of course. Why not include with this order the hives, supers, sections, foundation, etc., you will need for next season? Prices are lower now than they will be in the spring. Then it will be a great satisfaction to have every thing ready for immediate use when needed, and so be immune from the vexation and loss that may result from unavoidable delays during the rush season.

The flooded stock is pretty nearly closed out. A few odds and ends remain. If you can use any slightly damaged goods at very low prices, write for list.

Look the catalog over and make-up your order now. Do not hesitate to order even any small article needed, as the lower parcel-post rates now in effect insure delivery at trifling expense.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

Good Digestion Means Good Health

Therefore, daily add

FRENCH'S POULTRY MUSTARD

to your Fowls' Morning Mash

Its action is to aid digestion. As suitable for growing stock as for adults. One teaspoonful for every six fowls is the right quantity.

Write to us for a copy of pamphlet edited by Ralph Allen, Herts, England, with testimonials from the most prominent fanciers in the United States, who have used and are using FRENCH'S POULTRY MUSTARD.

The R. T. French Company

Mustard Makers

ROCHESTER, N. Y., Dept. D.

Boston New England

is the Shipping Center of

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR

"FALCONER"

Write for discounts—we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
128 Grand Avenue

PATENTS

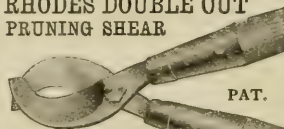
25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLauchlin Building, Corner Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts

Patent Counsel of The A. I. Root Co.

RHODES DOUBLE OUT PRUNING SHEAR



PAT.

RHODES MFG. CO.

528 S. Division A.,

GRAND RAPIDS, MICH.

Cuts from both sides of limb and does not bruise the bark.

We pay Express charges on all orders.

Write for circular and prices.

The A B C of Bee Culture

The only cyclopedia on bees, 712 pages, fully illustrated. Every phase of the subject fully treated by experts. Price \$2.00 postpaid; money refunded if unsatisfactory.

THE A. I. ROOT CO., Medina, Ohio.

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

FOR SALE.—6500 sections of white clover honey, fancy and No. 1. W. L. RITTER, Genoa, DeKalb Co., Ill.

See our special sale of honey on advertising page 11 of this issue. THE A. I. ROOT CO., Medina, O.

WANTED.—A barrel of amber honey. Quote prices delivered, f. o. b., Cameron, Tex. FRANK McLERRAN.

FOR SALE.—Comb and extracted honey, fine quality. THOS. ATKINSON, Cozad, Neb.

Choice buckwheat honey in 60-lb. cans at 8 cts. per lb. G. H. ADAMS, box 184, Schenectady, N. Y.

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—Comb honey. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—Finest quality clover and clover-basswood honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Extracted honey, white clover and white and sweet clover mixed, in 60-lb. cans. ARTHUR NORBERG, Spring Valley, Ill.

FOR SALE.—Finest quality white extracted and comb honey. Write for prices. STEARNS & FOX, Fruitdale, S. D.

FOR SALE.—Pure honey in 1 and 5 gallon cans and barrels. Sample, 10 cts. Price on request. I. J. STRINGHAM, 105 Park Pl., New York City.

FOR SALE.—Extra quality buckwheat honey in 60-lb. cans in a case, at 8 cts. Sample on request. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—White-clover honey in 60-lb. cans. Ripened on the hives. There is nothing finer in every respect. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Fine quality of sweet clover and alfalfa extracted honey in 60-lb. cans, \$9.00 per case of two 60-lb. cans. Write for prices on car lot. W. A. CHEEK, Merino, Colo.

FOR SALE.—Finest quality white-clover extracted honey in 60-lb. cans. State how much you want, and I will quote prices. LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—No. 1 white comb, \$3.50 per case; No. 2, \$3.00; 24 sections to case, six cases to carrier; clover extracted, two 60-lb. cans to case, 9 cts. QUINN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Our crop of "Elite" white-clover extracted honey. None better produced. Also raspberry extracted, blended with willow-herb; nearly as white as the clover; good body and flavor; 8 cts. per lb. Sample of either free. Address

E. D. TOWNSEND & SONS, Northstar, Mich. (Formerly at Remus.)

RASPBERRY HONEY for sale.—This honey was left with the bees until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. It is put up in new 60-lb. tin cans. The price is \$6.00 a can. Sample by mail, 10 cts. The 10 cts. may be applied on an order for honey.

ELMER HUTCHINSON, Pioneer, Mich.

FOR SALE.—Two cars alfalfa comb honey, graded by Colorado grading rules on page 2. J. M. CORNELIUS, Sterling, Colo.

FOR SALE.—Car of alfalfa comb honey, put in double-tier shipping-cases, 24 sections to the case. J. C. MATHEWS, Box 176, Montrose, Colo.

Dealers and producers who buy honey, kindly ask for a late number of the *Review*, giving a list of National members having honey for sale. Many carloads are listed in the October number. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTS AND EXCHANGES

WANTED.—Pony planer, hand planer, or jointer; feed-mill, extractor, gasoline engine, 3 to 6 H.P. F. G. BASS, Front Royal, Va.

WANTED.—To hear from owner who has a good farm for sale. Send description and price. NORTH-WESTERN BUSINESS AGENCY, Minneapolis, Minn.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. THOS. LITZ, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

In 1912 and '13 our bees wintered perfectly in the Eureka concrete case. Write for circular and learn about them. B. T. BOSSERMAN, Williamstown, O.

New crop of extra-fine quality alfalfa seed, \$7.00 per bushel; sacks, 25 cts. extra. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—A full line of beekeepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—One hand-operated paper-cutter and one check-protector, a device for protecting commercial paper. The last named will be useful in business houses, and the first mentioned will be of use in a small printing establishment. I will sell either at far below cost. Correspondence solicited.

MRS. W. Z. HUTCHINSON, Flint, Mich.

REAL ESTATE

FOR SALE OR TRADE.—Colorado, Utah, Idaho land. W. A. CONNELLY, Emmett, Idaho.

FOR SALE.—I offer my bee and fruit farm for sale, consisting of 10 acres situated 3 miles south and ½ mile west of Onawa, Iowa. Write for particulars. HENRY KRATZ, Rt. 2, Onawa, Iowa.

FOR SALE.—Honey business as follows: Four yards of bees, located in clover and buckwheat locality; full supply of fixtures for extracted honey; bee-houses and fixtures; Overland automobile; horse; wagons; 2½ acres of land partly set to small fruits; a honey-bottling business that takes 2000 dozens during the season; machinery for packing honey in glass. Located in an eastern State. Desire to give possession Jan. 1, 1914, and unfilled orders and good will of customers to go with the sale. Price reasonable on a cash sale. Excellent opportunity to step into an established business. Address H. G. A. 35441, care of GLEANINGS, Medina, Ohio.

BEES AND QUEENS

FOR SALE.—50 colonies of bees in L. hives. JAS. L. HOWARD, bx. 79, Rt. 2, Sta. D, Milwaukee, Wis.

FOR SALE.—50 to 200 colonies, eight-frame, first-class. E. F. ATWATER, Meridian, Ida.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

The best of untested queens, 75 cts. each; \$8.00 per dozen. Bees by the pound and nuclei for sale. Ask for prices. WM. ATCHLEY, Beeville, Bee Co., Tex.

FOR SALE.—Pure golden Italian queens. Day-old virgins, 50 cts.; untested, 75 cts.; tested, \$1.00. S. H. RICKARD, 506 Machesney Bdg., Pittsburgh, Pa.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address DEROY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—About 50 more queens to sell; same as advertised before; untested, 75 cts.; tested, 85 cts.; select tested, \$1.00.

J. M. GINGERICH, Rt. 3, Arthur, Ill.

Choice virgins 40 cts. each; 3 for \$1.00; untested, 60 cts.; tested, \$1.25; breeders, \$2.50; Italian or Carniolan. STANLEY & FINCH, 1451 Ogden Ave., Chicago, Ill.

Three-banded Italian queens. Best honey-gatherers. We can fill all orders promptly, rest of season, for 50 cts. each. No disease. Satisfaction, or money back. W. D. ACHORD, Fitzpatrick, Ala.

For quick sale, 32 colonies of bees, one half in ten-frame Langstroth, one half in Danzenbaker hives, all with ample stores, and with one super for 4 x 5 sections each. No disease. All for \$100. C. F. BUSHNELL, Gilbertsville, N. Y.

PHELPS' Goldenes combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce Golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price, \$1.00; 6 for \$5.00.

WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Malvern Hill, Va.

Golden and three-band Italian queens from the Golden State. Queens by return mail. No disease. One, 75 cts.; 6 for \$4.00; \$8.00 for 12. Special prices in large quantities. LEMUEL J. DUNN, 14 Garfield Ave., Rt. 6, San Jose, Cal.

Queens from Georgia Apiaries. Hybrids, 25 cts. each. Red-clover Italians, untested, 70 cts. each; dozen, \$7.50; tested, \$1.00 each; dozen, \$10.00. Safe delivery and satisfaction guaranteed. Comb honey in shallow frames; extracted, also bulk comb packed any size to suit customer. Prices and samples sent free. JOHN W. CASH, Bogart, Ga.

MISCELLANEOUS

Beagle hounds, pups, and trained dogs; fine stock and fair prices. Photos.

D. S. HALL, Marshfield, Vt.

Pure-bred Homer pigeons, \$1.00 per pair; or will exchange for bees or bee supplies.

J. C. WILKINSON, Red Lake Falls, Minn.

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$\$\$-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

FOR SALE.—Indian Runner ducks. Stock bred from first-prize hen and first-prize drake, Ohio State Fair. Fine birds, and unequaled egg-producers. Guaranteed birds at reasonable prices.

L. G. CARY, Trimble, Ohio.

Pure home-made cane syrup, grown and made by me. This is the pure juice of our Southern cane, boiled to a density of 32 deg. Baume scale. There is nothing added to this juice. My price is \$4.50 per case of 6 one-gal. screw-top cans, f. o. b. Mobile, Ala.

JOSEPH S. SCOTT, Mt. Pleasant, Ala.

Need winter apples? Three bushels assorted Rambo, Baldwin, Greening, Pippin, Seek-no-further, etc., fine sprayed fruit, for \$3.00. Smaller grade for \$2.50. Extra fancy, finest ever, \$5.00. Give shipping directions. C. WECKESSER, Doylestown, Ohio.

HELP WANTED

WANTED.—Young man to assist in care of poultry this winter, and work with bees next season. E. L. LANE, Trumansburg, N. Y.

WANTED.—Experienced beeman and helper for season of 1914. State age and experience in first letter. No tobacco fiend or booze-fighter need apply. F. P. LASH, Box 244, Imperial, Cal.

POSITION WANTED

An experienced German beekeeper desires, for the purpose of learning American methods, a situation with some extensive beekeeper. Salary moderate. Address 63346 GLEANINGS, Medina, Ohio.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

A. I. ROOT

WOMAN SUFFRAGE, ETC.

Our good friend Minnie J. Ellet writes on the outside of an envelop as follows:

"With ballots we can Carry A. Nation."

POPULAR MECHANICS MAGAZINE.

A few days ago the publishers of the above were kind enough to send us quite a lot of their magazines by freight, to be distributed among our workmen. I piled them on the sidewalk right near where the hands leave the factory. As they rushed out when the whistle blew you ought to have seen our boys grab them up. It made me think of a lot of bees around some honeycomb. Well, this magazine is only \$1.50 a year, and it is just chock full of information and about 370 pictures—pictures of every thing in the line of mechanics and invention that is going on anywhere in this world of ours. If you have not time to read it, it will be a good investment to take it just to look at the pictures, so that you may be able to keep just a little in touch with the busy world we live in. Address Popular Mechanics, 308 Washington St., Chicago.

THE CAMPINE BOOK; PRICE 75 CTS.

The above is the title of a new book on the breed of poultry called the Campine. The book, as a matter of course, describes the various points of merit of these fowls, and tells all about their good qualities, etc., and although the author has an advertisement of the Campines in the back part (\$5.00 for 15 eggs), he charges 75 cents for a pamphlet containing only 40 pages. What do you think of that way of doing business? This, of course, is not any reflection on the Campine as a breed of poultry. Many of our catalogs of incubators and other things pertaining to the poultry business contain a vast amount of information in regard to the chicken business; but as a general thing they are sent free, or on receipt of a stamp to pay postage. The above book contains almost nothing of value in regard to poultry-keeping in general. It is just a history of Campines only.

THE AMERICAN POULTRY JOURNAL YEAR-BOOK

The above is the title of a beautiful book of about 300 pages, issued by the *American Poultry Journal* last May. We would have given it a notice sooner; but the book is so attractive, full of nice colored plates, etc., that somebody took it off my desk and carried it away, and I have only just got hold of it. As the title indicates, it is a summing-up of the whole "chicken business" throughout the United States; and although I can not at present discover who the author is, so far as I can judge it is an unbiased account of what has been so far accomplished in poultry. A considerable part of the book is taken up with a report of poultry shows, which do not interest me particularly. Aside from that, there are single articles, by prominent men, worth nearly the price of the book. It is carefully indexed, so you can get the general decision in regard to ever so many topics that are now under discussion. Besides the beautiful plates in colors, there are many illustrations in black and white.

One of the articles that interested me greatly is the first one in the book (nine pages) "The Old and the New," by our veteran friend H. H. Stoddard. The price of this book, bound in cloth, is \$1.00; in paper, 50 cts. Or you can have it clubbed with *GLEANINGS*, cloth-bound, for \$1.50; paper, \$1.25. You can order of us or of the *American Poultry Journal*, Chicago.

"ALFALFA-SEED PRODUCTION."

The above is the title of a bulletin sent out by the Department of Agriculture, containing 32 pages, and a dozen or more excellent illustrations. Ernest has told you how apple-men are getting on to the fact that they can not grow a big crop of fine apples without bees in the orchard; and I gather from this bulletin that it is equally true we can not get a big crop of alfalfa seed without bees of some kind in the neighborhood; and on the other hand some beekeeper ought to plant a sufficient number of colonies of bees close to any farm that undertakes to grow alfalfa seed in any quantity. This bulletin considers the matter under the head of "Influence of Honey-gathering Insects."

"Nearly all experiments show that if insects are excluded from alfalfa flowers by means of screens very few or no seeds are produced, whereas adjoining plants not screened produce an abundance of seed if other conditions are favorable."

The bulletin contains a beautiful photograph, not only of the seeds of the alfalfa, but all the different seeds of injurious plants that are likely to be found with alfalfa. Last, but by no means least, is the dodder plant. If the alfalfa seed you get hold of contains a small quantity of sweet clover it will do no harm, but, rather, the contrary, according to our good friend Wing. This bulletin contains a vast amount of information in regard to growing alfalfa. There are other bulletins treating on alfalfa for hay and feed, and these will all be sent free on application to the Department of Agriculture.

In a similar bulletin issued in 1909 we find the following:

ALFALFA IN CULTIVATED ROWS FOR SEED PRODUCTION IN SEMI-ARID REGIONS.

Honeybees, though not nearly so effective as bumblebees, should not be underrated in this connection. It is a practice in some parts of the country to place beehives along the margins of alfalfa-fields intended for seed. Beekeepers follow with their colonies fields planted for seed, for the purpose of getting the honey. This is mutually beneficial, as larger yields of both seed and honey result.

"THE INDIAN RUNNER DUCK-BOOK."

Friend Valentine has just furnished us a new revised and enlarged edition of his duck-book—paper, 75 cts.; cloth, \$1.05, postpaid. C. S. Valentine, Ridgewood, N. J. The new book contains 166 pages, and much valuable matter pertaining to the Indian Runner; but I would suggest, first, that it needs a new index as well as a table of contents (chapter headings). There are many things about ducks that people want to get at quick without looking the book all through to find it. For instance, food for ducklings; keeping them out of the water until they are old enough; how to tell ducks from drakes; hatching duck eggs in an incubator, etc.

Now, just one thing more: There are 17 chapters in this duck-book. Seven out of the whole are devoted to discussing mainly color. Yes, I know there are long articles in our poultry-journals, and some pretty hot discussions, as to "fawn" and "white," "penciled," or ducks white all over, etc. I presume I am old-fashioned and behind the times, especially in regard to what is "standard;" but it seems to me it is a matter of very small moment whether the duck is black, white, or gray, so long as any flock of ducks can be changed from black to white and from white to black in a very short space of time, as Darwin told us years ago. And, again, there is a lot of discussion, and I should say a lot of quarreling about the color of the eggs; but so far as I can learn, the color has nothing whatever to do with the quality. If your market pays a higher price for the white eggs, of course it will pay to select a strain that lays eggs that are white. I am well aware that the whole poultry business in their great shows are giving more attention to the color of the feathers than to almost any thing else. The "egg contests" now going on all over the world are, however, a move in another direction; and it makes me glad every time I see the world coming down to the principle of "handsome is that handsome does." I would not bid the big price on the ducks that lay lots of eggs, big eggs, and nice sweet eggs, as delicious and nice as hens' eggs, or more so. This new book discusses this very matter, but it is scattered all through it. Will not our good friend Valentine make us a carefully prepared index that can be pasted in the books already out?

Goods came to hand in due time, and are all right. I am especially pleased with the smoker. It is a little giant. The Hoffman frames also are A1 in material and workmanship.

Marietta, O., July 22.

REINHARD STEHLE.

A KIND WORD FROM AWAY DOWN IN TEXAS.

Mr. Root:—You little know how much I have enjoyed your writings in the past, and I believe they have helped to make me a better man. I love your ideas of absolute right between man and man, or the golden rule; and I hope you may be spared for many years yet to continue in your usefulness.

Delia, Texas.

M. C. FULLER.

PUBLICATIONS ON BEE CULTURE

(Please use coupon below, check-
ing the numbers of items wanted.)

The pamphlets and booklets listed below are of more than ordinary interest.

- 1 MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
- 2 THE BEEKEEPER AND FRUIT-GROWER. A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how beekeeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honeybees in close proximity to their blossoming fruit. Free.
- 4 CATALOG OF BEEKEEPERS' SUPPLIES. Our complete catalog will be mailed free to any address on request.
- 7 SPRING MANAGEMENT OF BEES. A 14-page booklet detailing the experiences of some successful beekeepers, and giving instructions on this oft-times perplexing matter. Price 10 cents.
- 8 HABITS OF THE HONEYBEE. By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cents.
- 9 HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 THE A B C OF BEE CULTURE. A complete encyclopedia of bees, of 712 pages, fully illustrated, \$2.00 postpaid; half leather, \$2.75.
- 11 GLEANINGS IN BEE CULTURE. A 64-page illustrated semi-monthly magazine—the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.
- 12 BACKYARD BEEKEEPING. Six interesting lessons written in readable newspaper style. Many facts encouraging the "City Bound" man or woman with the back-to-the-land longing. Free.
- 13 THE BUCKEYE BEEHIVE, or the management of bees in double-walled hives. Of special interest to the amateur beekeeper. The most complete booklet we publish for free distribution. Illustrated throughout; 84 pages.
- 14 ADVANCED BEE CULTURE. A beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that its many fine illustrations are unusually clear in every detail. Bound in an attractive and substantial cloth—\$1.00 per copy, postpaid.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted, and adding your signature, and remittance, if required.

CUT COUPON HERE

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose

\$.....to cover the cost.

1	2	4	7	8	9	10	11	12	13	14
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Name

Street Address or R. F. D.

Town.....

B. C. State.....

SPECIAL NOTICES

By Our Business Manager.

EARLY-ORDER DISCOUNT.

The discount available for early cash orders received this month is 6 per cent from the revised prices now in effect. This discount eliminates a large part of the advance in price, and is worth your while saving if you are in need of goods for next season, and in position to order with payment accompanying.

REVISED PRICES.

We now have in print, ready to mail on request, an eight-page folder giving the revised prices in effect the first of this month with statement of the early-order discounts available for cash orders sent in advance of the season. This folder contains a good many prices which have not been changed, as well as those which have; but it does not have quite all the price lists of the entire catalog.

"BUSY BEE" ENGINE.

We have adopted for next season a 1½-H.P. gasoline-engine made by the same people who have supplied our engines for several years. It is water-cooled on skids, and fitted with a special flanged pulley especially adapted to running our power extractors. It will cost only \$32.50 complete, ready to run. Here is one item that has been reduced in price. I don't know where you will find its equal for the same money.

METAL-ROOFED COVER.

We have adopted as the standard cover on all our hives, unless otherwise specified, the one listed as Rc, which has a sheet of metal over the top, and which telescopes over the hive about two inches with a separate super cover under it. This had added somewhat to the cost of the hives in the new list of prices. We also give the option of other styles of cover at a reduced price. One of the other styles which we will offer is the old original one-piece board with a cleat on each end. This board may be of several pieces, but so securely put together as to be stronger and better than if in a single board. It may be of California redwood or pine. The cover we recommend is the one which we have made standard, because we believe, all things considered, it is superior to any other.

Kind Words from our Customers

The A. I. Root Co.:—I congratulate you upon your goods, and on having such neat workmen. They are simply fine—your boxes. The bees are trying to do the best they can. We have learned, and are getting more products than I ever saw.

Flushing Ohio, July 22.

J. A. MORRIS.

The A B C and X Y Z is received. The book is every thing that could be desired. It is a running mate for GLEANINGS, the best book and bee journal published. I should be glad to act as your representative in this locality, as I believe the "backyard" and farmer beekeepers would be greatly benefited by subscribing for the paper.

Colfax, Cal., Sept. 27.

MONTE HEMMY.

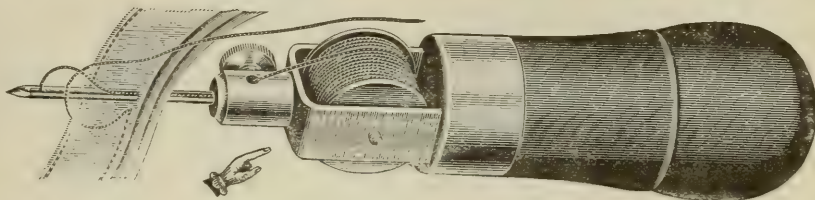
My dear Mr. Boyden:—Incidentally it may be of passing interest to you to know that I have beaten my former record this year, as presumably all the beekeepers in the Eastern States have or should have done. I lost something through absence, for the simple reason that my bees filled every thing full of honey, and then ceased work because there was no further room for storage. As it is, however, I have taken up to the present time, and stored away, a little short of 300 sections of white-clover honey from two colonies, the greater part of which will grade "Fancy." Although the season is somewhat late I supplied supers with foundation, and the stronger of the two colonies has almost filled the half-depth super in five days' time.

Detroit, Mich., Aug. 22.

J. M. FRANCIS.

MR. FARMER

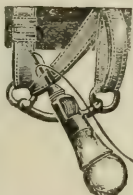
Let the "Perfect" Sewing Awl help solve the problem "You should worry" when you can get a dollar awl for such a little work . . .



See that thread reel under the finger tips (This principle is right).

Needles in screw top hollow handle.

Sewing Awl mailed direct on your individual order for 50c each, postpaid, and insure safe delivery when the remittance is sent with order.



Repairing
Harness

THE real Awl with the exposed thread reel in natural position under the finger tips where you can automatically control the tension.

No springs or levers—so simple a child can use it.

Practical, useful, handy—can be carried in the pocket.



Repairing
Shoes

This Awl will pay for itself many times over through the convenience derived from such a tool at just the right time.

Will be found to be of special value to every household. It is a practical hand-sewing machine for the speedy repairing of harness, shoes, belts, carpets, canvas—in fact it can be used for all kinds of heavy sewing.



Repairing
Buggy Top

A PREMIUM that will not disappoint you. Each Awl is equipped with a supply of waxed thread, diamond point needles, straight and curved, and directions, in suitable mailing carton.

PREMIUM OFFER.—We will send one of these awls as premium to any reader who sends us two NEW subscriptions to **GLEANINGS IN BEE CULTURE** for six months at rate of 25 cents each.

The A. I. Root Company, Medina, O.

Cash for your Honey at your door

The committee in charge of the Honey-Producers' League Fund has \$604, to be used in advertising uses of honey, and to create more demand for honey. They have purchased several thousand books entitled "The Use of Honey in Cooking," with chapters on "What is Honey?" "Food Value of Honey," "How Comb and Extracted Honey is Produced," "Why Honey Granulates, and How to Liquefy the Same;" "Why Different Flavors of Honey from Different Flowers;" "Why Use Honey in Cooking in Place of Sugar;" "Where to Keep Honey," and over one hundred recipes for the use of honey in cooking, candies, cough syrups, creams, and soaps—58 pages of valuable information.

If you want a home market for more honey than you produce, get some of these recipe books and use judgment in giving them to those you believe will use honey for table and cooking, asking each to give it a trial.

I have talked with beekeepers of several States who have been thus using these books for their customers, and who now have to buy honey to finish filling orders. To get these books before consumers I will GIVE them to beekeepers and members of the National Beekeepers' Association who may ask for them, provided they will pay postage on the books ordered, and who will, in application, state the number of colonies of bees they had in the spring of 1913, and pounds of comb and extracted honey produced this season, and prices they are selling at.

Postage on the books is 68 cts. for 100 copies. Other lots in proportion. If beekeepers want a growing home market for all their honey, here is a chance to get it for nothing. When this one lot of books is gone, others getting them later will have to pay publishers for them \$4.50 per 100 copies.

N. E. FRANCE, Platteville, Wis.

Chairman of League Fund Committee



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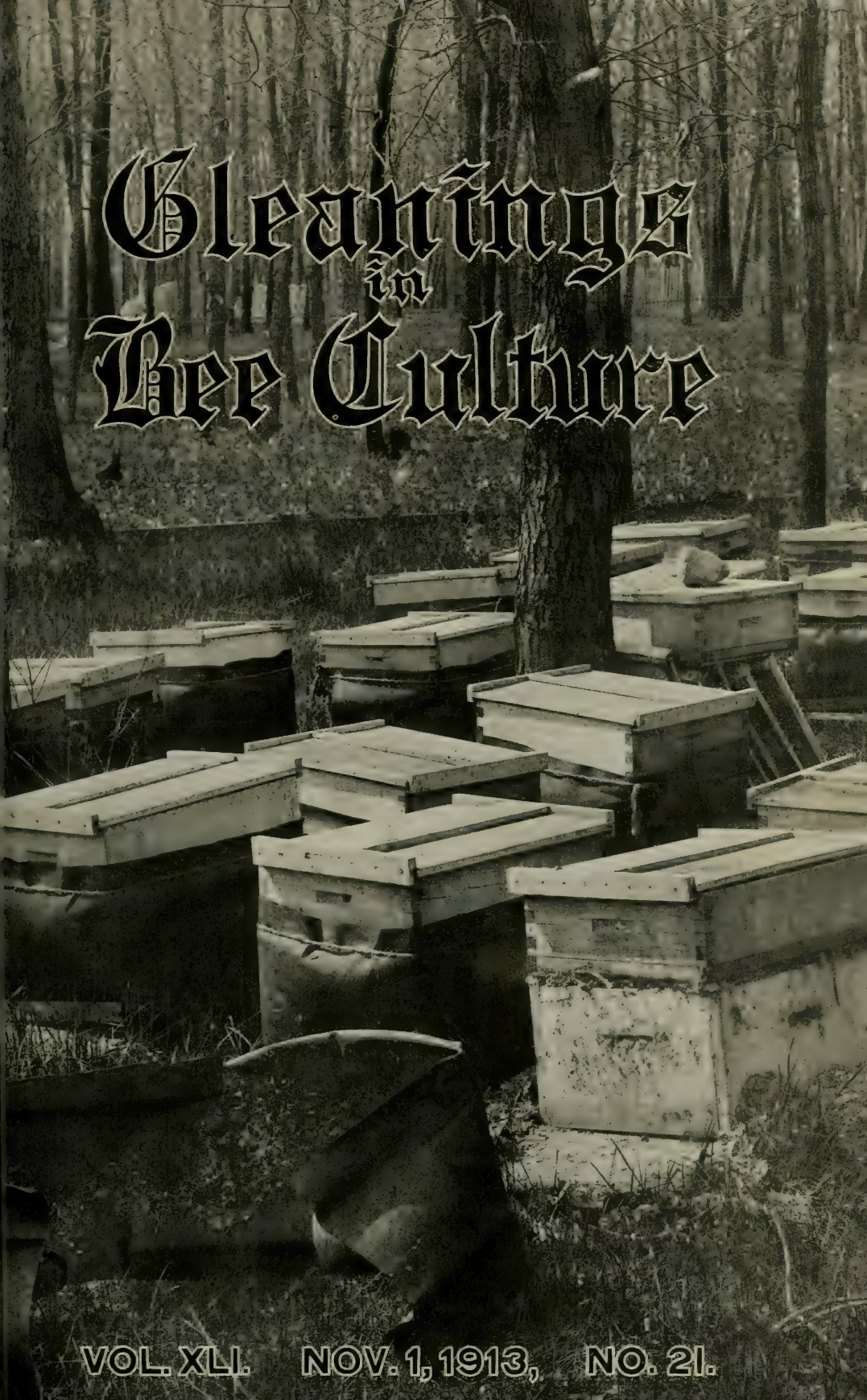
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Cleanings in Bee Culture

VOL. XL. NOV. 1, 1913, NO. 21.

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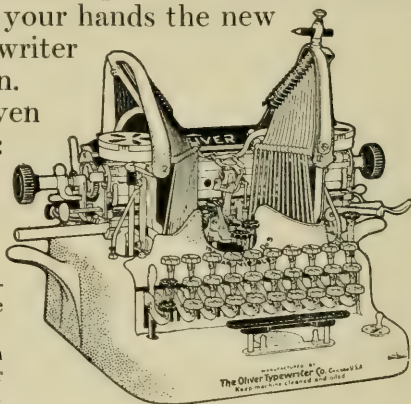
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Edward F. Bigelow, Editor,

The Agassiz Association, Inc.

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HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1913.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and en-

tirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb, 16 to 17; white extracted, 10 to 11. Beeswax, 30. There is an active demand for white comb honey.

Boston, Oct. 18.

BLAKE-LEE CO.

INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cts. in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cts. cash or trade.

Indianapolis, Oct. 18.

WALTER S. POWDER.

SCHENECTADY.—Shipments of white comb honey from the West are now arriving, and it is less difficult to fill orders, as our market has been fairly well supplied with buckwheat. We quote No. 1 white, 16 to 17; No. 2, 14 to 15; buckwheat, 13 to 14; extracted, light, 9 to 9½; dark, 7½ to 8.

Schenectady, Oct. 18. CHARLES MACCULLOCH.

CINCINNATI.—The demand for honey is good. We sell fine table honey in 60-lb. cans from 8 to 10 cts., according to the quality and quantity; amber honey in barrels, from 5½ to 8. Comb honey, for the very fanciest we are getting from \$3.75 to \$4.00 a case. For choice bright yellow beeswax we are paying 36 cts. per lb. delivered here.

Cincinnati, Oct. 22.

THE FRED W. MUTH CO.

ZANESVILLE.—There is a healthy demand for honey with supply about balancing demand. Best grades of white comb are quoted, jobbing, 17; wholesale, 18 to 19. Best white extracted in 60-lb. cans, 9½ to 11, according to quantity. Producers are receiving for beeswax 30 cts. cash, 32 in exchange for supplies.

Zanesville, Oct. 18.

E. W. PEIRCE.

Honey reports continued on page 5.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

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for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

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During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Honey reports continued from page 2.

ALBANY.—Our honey market is steady; receipts do not increase, and we are getting good stiff prices—best in some years. Fancy white clover is scarce at 17 to 18; good, 16 to 17; mixed, 15 to 16; buckwheat, 14 to 15; extracted buckwheat, $7\frac{1}{2}$ to 8; amber and mixed white clover, $8\frac{1}{2}$ to $9\frac{1}{2}$. Beeswax, 31 to 32.

Albany, Oct. 23. H. R. WRIGHT.

DENVER.—Our local market is well supplied with honey and jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice ditto, \$2.57; No. 2 ditto, \$2.43; extracted white, 8 to 9 cts. per lb.; light amber, 7 to $7\frac{1}{2}$ cts. We are in the market for beeswax, and pay 30 cts. per lb. in cash; 32 cts. in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Col., Oct. 22. F. RAUCHFUSS.

KANSAS CITY.—The supply of comb honey is liberal, demand fair. The supply of extracted is not large, but the demand is very good. We quote No. 1 white comb honey, 24-section cases, \$3.00 to \$3.10; No. 2 ditto, \$2.75 to \$2.90; No. 1 amber ditto, \$3.00; No. 2 ditto, \$2.50 to \$2.75; extracted white, per lb., 8 to $8\frac{1}{2}$. Beeswax, 25 to 30.

C. C. CLEMONS PRODUCE CO.
Kansas City, Mo., Oct. 10.

BUFFALO.—Since my last report there is very little improvement in demand for white honey; quite a call for buckwheat, but hardly any coming in. Prices are easy on white, and firm on buckwheat. No. 1 to fancy white-clover comb honey brings 16 to 17; No. 2 ditto, 12 to 14; No. 1 buckwheat comb honey, 13 to 14; white extracted, 9 to 10; slow sale; buckwheat extracted, $7\frac{1}{2}$ to 8; good demand; amber extracted, 7 to $7\frac{1}{2}$. Beeswax, 28 to 30.

Buffalo, Oct. 18. W. C. TOWNSEND.

LIVERPOOL.—The market remains very quiet, with only retail sales of all descriptions. For Chilian, average pile 3, \$5.52 c. i. f. has been paid, for the Continent; but sellers are now encouraging \$5.40. Small sales of Californian have been made at \$10.32 to \$10.80, and of New Zealand at \$10.80. There is no Jamaican on the spot at present. Since our last report the beeswax market has been firm, and about 70 bags Chilian sold on spot at \$37.02 to \$41.88 per cwt. to quality.

Liverpool, Eng., Oct. 15. TAYLOR & CO.

CHICAGO.—The market during the past two weeks has been more active, and has nearly kept pace with the receipts; but the accumulations of the previous four weeks or more are, many of them, yet unsold. The white grades of comb honey range from 16 to 17 for the A No. 1 to fancy; but the majority of the receipts sell at from 15 to 16. The amber grades range from 1 to 3 cts. per lb. less. Extracted honey is also quiet, with the white grades bringing from 8 to 9, and the ambers from 7 to 8, according to kind and quality. The weather and season of the year are now favorable for the outlet of honey; and were it not for the large offerings, the quality of the crop should command even higher prices than now prevail. Beeswax is steady at from 30 to 32, according to color and cleanliness.

Chicago, Oct. 16. R. A. BURNETT & CO.

ST. LOUIS.—The demand for both comb and extracted honey has been quite active of late, and will continue so as the weather grows cooler. While the receipts of Southern honey have not been so large the past two weeks, some Western honey has been coming in to this market to take its place. Southern light-amber extracted honey can now be quoted at $6\frac{1}{4}$ to $6\frac{1}{2}$ in barrels and half-barrels; and $6\frac{1}{2}$ to 7 in five-gallon cans. Southern white comb honey sells by the pound at 15 to 16; No. 2, 13 to 14; light amber, 12 to 14; dark, 10 to 11. Most of the comb honey in this market is sold by the case, and we can quote it as follows: Southern white, full comb honey, at \$3.00 to \$3.25; light amber from \$2.50 to \$2.75, according to quality. Dark or broken comb or combs that are partly filled are almost unsalable. The above quotations are for round lots. Beeswax is in good demand, and is now quoted at 32 cents for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO.
St. Louis, Mo., Oct. 21.

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Bee-brushes,
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Tin Cans,
Cartons,
Bee Books,
Gloves.

You are doubtless in need of and ready to order one or more of these items. You want ROOT QUALITY and PEIRCE SERVICE of course. Why not include with this order the hives, supers, sections, foundation, etc., you will need for next season? Prices are lower now than they will be in the spring. Then it will be a great satisfaction to have every thing ready for immediate use when needed, and so be immune from the vexation and loss that may result from unavoidable delays during the rush season.

The flooded stock is pretty nearly closed out. A few odds and ends remain. If you can use any slightly damaged goods at very low prices, write for list.

Look the catalog over and make up your order now. Do not hesitate to order even any small article needed, as the lower parcel-post rates now in effect insure delivery at trifling expense.

E. W. Peirce, Zanesville, O.

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YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLachlen Building, Corner
Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts

Patent Counsel of
The A. I. Root Co.

Boston New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street

BOSTON, MASS.

EXTRACTED HONEY

Just received car new alfalfa from Utah:
8½ cts. per pound f. o. b. Kansas City, Mo.

C. C. CLEMONS BEE SUPPLY CO.

128 Grand Avenue

Kansas City, Mo.

The BEEKEEPERS' REVIEW

Is the only bee journal that will have the entire write-up of the system of that Prince of Beekeepers, J. J. Wilder. This series of articles describing his system of managing 3000 colonies of bees in 50 yards, that produced 200,000 pounds of comb and extracted honey during the season of 1913, began in the July number of the REVIEW, and it now looks as if it would continue during the entire season of 1914. Space forbids our dwelling upon the magnitude of this one man's production. Would you like to sit in your office and dictate by circular letter the management of 50 yards of bees? The series is now running in the Review, and we are printing extra copies for the last half of this year, and as long as they last we will give the last half of 1913 and ALL of 1914 for \$1.00, the regular annual subscription price of the Review.

This is but one of the many features that will be brought out during the year 1914. Remember that only early subscribers will get the back numbers, as we have but 300 sets left. Write to-day, with remittance to

The Beekeepers' Review, Northstar, Michigan

LEWIS HIVES ARE BUILT LIKE FURNITURE
ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell
you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.



"If Goods are wanted Quick,
send to Pouder."

Bee Supplies!

A bounteous crop of finest quality honey has been secured, and, resulting from the needs of beekeepers in supplies, I have experienced the busiest season that I have ever known. The demand for the Root Goods has been excessive, and I have been very fortunate in keeping my stock complete and filling orders promptly. To do this my helpers and myself were required to apply ourselves from fifteen to eighteen hours per day. We were, of course, glad enough to do this, but I am going to offer some attractive discounts for supplies to be used next year if ordered early, and this will reduce the task of having so much to look after at the busy season. I believe the discounts will be a mutual benefit to all concerned. I am always glad to quote lowest estimates on any list of goods.

A feature on which I am now specializing is sending goods by parcel post. If you are within 150 miles of Indianapolis I can have your goods delivered to your home at a very moderate cost, if the package doesn't weigh over 20 pounds.

MONONGAHELA, PA.

Walter S. Pouder, Indianapolis.

Dear Sir:—Comb honey arrived in excellent condition, and I am highly pleased with quality of the honey. I will say a good word about your business, and I appreciate your promptness and careful methods.

Yours, EDWARD MAYHUGH.

Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.
873 Massachusetts Avenue

5 Per Cent**5 Per Cent**

The Discount for cash orders received in November is 5 per cent off the new schedule of prices. Buy now and save money. We will be pleased to quote you net prices at your request. . . . Beeswax wanted.

M. H. Hunt & Son

Lansing, Michigan

Opposite Lake Shore
Depot

General Agents for Root's
Goods in Michigan

5 Per Cent**5 Cent Per**

BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street

IF YOU USE

bee supplies you should have our catalog.

We sell the best No. 25 jar made.

Heavy cartons that protect honey.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Aplaries, Glen Cove, L. I.



Established 1885

We carry an up-to-date
line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. . . . Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributer. G. B. Lewis Company, Watertown, Wis.

"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

Root's Shipping Cases for Honey

We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. . . . NEW 60-POUND CANS, two in a case, a specialty. . . . FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.

"Griggs is always on the job."

Inventory Season is Here

I have completed my inventory of Root's Bee Supplies on hand at my Syracuse warehouse, and my stock orders for 1914 goods has been sent to the factory at Medina, Ohio. If any customer or any beekeeper of New York State desires special goods I shall be pleased to send in the order to come with one of my cars to Syracuse.

I take this opportunity to thank my customers for their liberal patronage the past season, and solicit a continuance of the same.

November Discount, 5 per cent from Revised (Oct. 1) Prices

F. A. Salisbury, Manager, Syracuse, N. Y.

Send for Our Prices on

BEE SWAX

We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

Dadant's Foundation

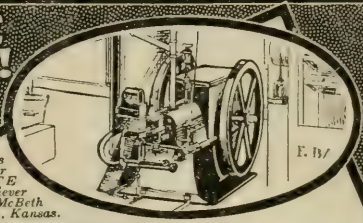
Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

DADANT & SONS
HAMILTON, ILLINOIS.

NOW, THESE PRICES IN EFFECT!

2 H-P \$39.45 4 H-P \$75.50
6 H-P \$99.35 8 H-P \$149.90
11 H-P \$218.90

OTHER SIZES PROPORTIONALLY LOW.



This 20-horse old WITTE Engine has never failed via owners, McBeth & Dallas, Garden City, Kansas.



LET me send you a WITTE ENGINE to earn its cost while you pay for it. It's cheaper than doing without one.
Ed. H. Witte.

WITTE ENGINES

Kerosene, Gasoline & Gas

Sold Only Direct from Factory to User. No matter where you live or what work you have that can be hitched to a belt, you can own a WITTE to better advantage than any other engine. Sizes are 1 1/2, 2, 4, 6, 8, 11, 12, 15, 20, 25, 30 and 40 H-P. Styles, **Stationary, Portable, Skidded and Sawrigs.** Over 27 years in the lead in engineering. Better now than ever, with prices that can't be beat.

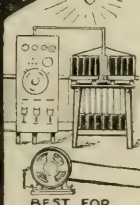
No need now to do without a good engine, or to take chances on a poor or unknown one, to get a low price. The WITTE fills the bill.

My Book Free I furnish highest standard engines for prices less than asked for rat-traps. My Free Book explains the inside of engine selling as well as **manufacturing.** Write today for my Easy Terms Sales Plan.

Ed. H. Witte, Witte Iron Works Co.,
1936 Oakland A., Kansas City, Mo.

**60
DAYS'
FREE TRIAL
5-YEAR GUARANTEE**

TERMS TO SUIT



BEST FOR
ELECTRIC LIGHTING

FREE TRIAL FOR 30 DAYS NON-CRANKING KEROSENE ENGINE

*"The Masterpiece of the Largest
Makers of Two-Cycle Engines in the World"*

The astounding success of Gaso-Kero two-cycle kerosene engines is based upon the perfect Bessemer Universal Fuel Feeder, controlled exclusively by us.

The Wonderful Bessemer Gaso-Kero Engine

This perfect fuel feeder has sounded the death knell of carburetors, and is the only thoroughly successful device for feeding kerosene, gasoline, distillate, etc., without change of equipment. It is revolutionizing the engine business. It is the one big, right idea; we discovered it, and control it—you cannot get it in any but a "Gaso-Kero." "Gaso-Kero" two-cycle engines are simple—only three moving parts—are constant and steady as clocks. 2 to 350 H. P. Immediate shipment.

Write for Catalog A14

BESSEMER GAS ENGINE CO.

Largest Makers of Two-Cycle Engines in the World
132 Lincoln Ave., GROVE CITY, PA.



Pays for itself in fuel saved



MANN'S

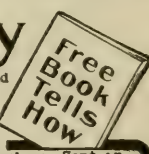
Make Your Hens Lay

You can double your egg yield by feeding fresh-cut, raw bone. It contains over four times as much egg-making material as grain and takes the place of bugs and worms in fowls' diet. That's why it gives more eggs—greater fertility, stronger chicks, larger fowls.

MANN'S LATEST MODEL BONE CUTTER

cuts easily and rapidly all large and small bones with adhering meat and gristle. Automatically adapts to your strength. Never clogs. Sent on 10 Days' Free Trial. No money down. Send for our free books today.

F. W. MANN CO. Box 37 MILFORD, MASS.



Free Book Tells How

STUDY BEE CULTURE BY MAIL

There is money in Bees if you know how. Make a good living from Bees or keep down the high cost of living. Always a good demand for men who know Bee Culture. Just the opportunity you have been wanting—**learn at home.** You can make your spare time count and finish this course this winter by beginning now. This excellent course prepared by **E. R. Root**, the foremost exponent of Scientific Beekeeping. Also splendid correspondence courses in General Farming, Truck—North or South, Poultry, Fruit, Flowers, Greenhouse, Soils, Dairying, Farm Management, Farm Book-keeping, Farm Veterinary, Writing for the Farm Press, Mushrooms, Ginseng, etc. Original and latest school devoted exclusively to teaching farming by mail. Write today for **Free Booklet "How to Make the Farm Pay More."** also temporary low rate, easy terms, full particulars. (Which course interests you?) (No agents.) Free sample lesson from General Farming Course on request.

American Farmers School, 439 Laird Building, Minneapolis, Minn.

GET TOP NOTCH PRICES FOR YOUR MONEY

BY USING LEWIS SECTIONS AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.



NEW **BINGHAM**
BEE SMOKER
Patented

BINGHAM BEE SMOKERS

are self-cleaning, as the cover sits inside the fire-pot; the liquid creosote runs back into the fire and burns up. The valve in the bellows gives you a smoker with life.

Smoke Engine, 4-inch stove,	\$1.25
Doctor, 3½-inch stove,	.85
Conqueror, 3-inch stove,	.75
Little Wonder, 2½-inch stove,	.50

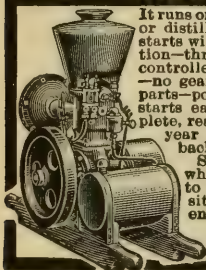
Two larger sizes with metal legs and hinged cover, in copper, 50c extra.

Parcel-post shipping weight, 2lbs. each.

For sale at your dealers or direct.

A. G. WOODMAN CO.
GRAND RAPIDS, MICH

20 Reasons Why You Should Investigate the SANDOW Kerosene Stationary ENGINE



It runs on kerosene (coal oil), gasoline, alcohol or distillate without change of equipment—starts without cranking—runs in either direction—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—starts easily at 40 degrees below zero—complete, ready to run—children operate them—5-year ironclad guarantee—15-day money-back trial. Sizes 2 to 20 horsepower.

Send a postal today for free catalog, which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your county. (164)

Detroit Motor Car Supply Co.
72 Canton Ave., Detroit, Mich.

Why Pay the Dealer to Select Your Range?



YOU know what you want better than he does. Don't depend on his taste. Get the Kalamazoo book of 400 stoves and make your own choice.

Pay Cash or Take

Your Time

—30 Days' FREE Trial—Save \$5 to \$40!

In 250,000 delighted homes Kalamazoo ranges are praised 3 times a day. They make cooking a pleasure and saving a pride.

Write for Catalog No. 416

KALAMAZOO STOVE CO. Kalamazoo, Mich.
We make a full line of Stoves, Ranges, Gas Stoves and Furnaces.
We have three catalogues—please ask for the one you want.

"A Kalamazoo Direct to You" And Gas Stoves Too

The "BEST" Light

The problems of adequate illumination vanish when you install a "Best" Light system. More than 200 styles are pictured in our catalog—every one of them guaranteed to give a clear, radiant white light at lower cost than any other illumination you can use. Agents wanted.

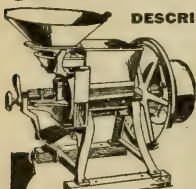
THE BEST LIGHT CO.
306 East 5th St., Canton, O.



Write for Catalogue

DESCRIBING, ILLUSTRATING and PRICING

Quaker City Mills



The acknowledged standard for high quality and variety of satisfactory usage for 47 years. 23 styles—hand power to 20 h. p. Will grind any grain, separate or mixed, coarse or fine meal, corn, cobs and husks. Sold on

10 Days' Trial—Freight Paid

Write for our grinding mill catalogue at once, also for booklet on labor-saving farm machinery at bargain prices.

THE A. W. STRAUB COMPANY

Dept. R, 3748-50 Filbert Street, Philadelphia, Pa.
Dept. B, 3703-11 So. Ashland Av., Chicago, Ill.

FARM FENCE FROM FACTORY TO FARM



26-inch Hog Fence,	14c.
41-inch Farm Fence,	21c.
48-inch Poultry Fence,	22½c.
80-rod spool Barb Wire,	\$1.55

Many styles and heights. Our large Free Catalog contains fence information you should have.

COILED SPRING FENCE CO. Box 101 Winchester, Ind.

BOTHERED WITH SCALE?

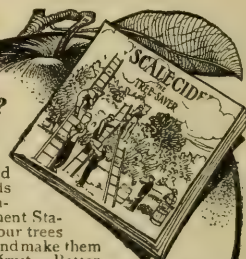
The one absolutely sure spray for San Jose is "Scalecide" Used in the best orchards everywhere.

Endorsed by Experiment Stations. Will keep your trees clean and healthy and make them yield number one fruit. Better than lime sulphur. Easy to handle.

Will not clog or corrode the pump or injure the skin. "Scalecide" has no substitute. OUR SERVICE DEPARTMENT furnishes everything for the orchard.

Write today to Department 6, for new book —"Pratt's Hand Book for Fruit Growers" and "Scalecide" the Tree Saver. Both free.

B. G. PRATT CO., 50 Church Street, New York City



An Opportunity to Make an Independent Living from a small cultivated area in "The Land of Manatee"

On the Gulf Coast of Southern Florida

All the early vegetables, marketed at highest prices, are successfully grown—3 and 4 different crops per annum. A home in a delightful year-'round climate. A young man paid \$125 for an acre of land this year, and spent another \$125 in clearing and cultivating it in tomatoes. The production was 550 baskets, which were sold at \$2.50 per basket; total gross production from a single crop on an acre of ground, \$1375. The same advantages and opportunities are open to you. Let us tell you in detail of the possibilities in this favored section. Ask for beautiful illustrated book, "Fruit and Vegetable Growing in Manatee County."

J. A. PRIDE

General Industrial Agent
SEABOARD AIR LINE RAILWAY
Suite No. 376, Norfolk, Va.

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey:

ALFALFA,	PALMETTO,
SWEET CLOVER,	ORANGE,
WHITE CLOVER,	LIGHT AMBER,
ALSIKE CLOVER,	DARK AMBER,
BASSWOOD,	BUCKWHEAT.

We have some very fine lots of Ohio, Michigan, and Wisconsin WHITE-CLOVER COMB HONEY. For those who have not secured a good crop, and are wanting some fine lots for their trade, we can furnish them any desired quantity.

Write for our special prices.

The A. I. Root Company
Medina, Ohio

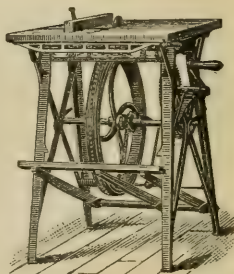
BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.,
545 Ruby St.,
ROCKFORD, - ILLINOIS.



ARMY AUCTION BARGAINS	
Saddles.....\$3.00 up	New Uniforms.....\$1.50 up
Brilles......30 "	Army Revolvers.....1.65 "
Team Harness.....21.85 "	Rifle Rifles.....1.45 "
Leggins, Pair......18 "	Swords......35 "
Tents......3.85 "	7 Shot Carbines.....2.95 "
Colts Cal. 45, Revolvers.....\$7.50 up	Cartridges 1 ea.
Sp' Field Mauser Sp'lg Rifle.....11.85	Cartridges 2 ea.
Army Breech Loading Rifle......98c.	Cartridges 2 ea.
400 Large page CYCLOPEDIA CATALOGUE. Over 5,000 illustrations. BEST BOOK PUBLISHED ON WAR WEAPONS mailed 25 stamps.	

Francis Bannerman, 501 Broadway, New York City



Large Eggs

now and all winter, too, if you feed your hens The Humphrey Way—fresh bone prepared in a

HUMPHREY BONE CUTTER with its Always-Open Hopper. If you have 10 hens or more, write for our offer and a copy of our profitable book, "The Golden Egg."
HUMPHREY, Mine St. Factory, Joliet, Ill.

A BEEKEEPER who uses cheap shipping-cases for his comb honey isn't necessarily mean. The chances are he's thoughtless. But many grocers or other dealers who receive his honey will not accept this generous view.

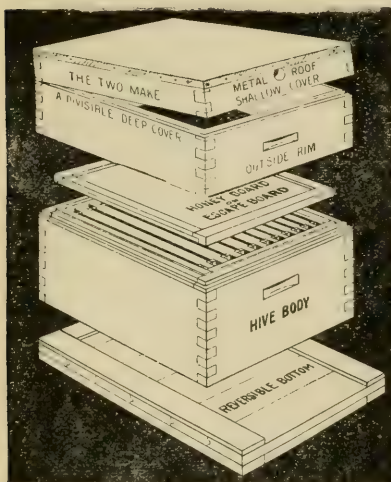
Among that number may be the very grocer he wants to influence most—the one who has the best trade in honey in that locality.

So he should use good shipping-cases, such as we make. To use them is economy, not an expense.

For particulars write us or our dealers, or consult our catalog.

The A. I. Root Company Medina, Ohio

New York, Chicago, Philadelphia, Washington, Des Moines.



PROTECTION HIVE

Did you ever camp out in a single-wall cabin during a cold winter's night? If so you can appreciate the advantage of double walls. So can your bees.

Clear-stuff white-pine material, $\frac{7}{8}$ thick in the outer wall. Still selling at the old price, \$13.00 for five hives like cut. Immediate shipments. Order at once.

A. G. Woodman Co.,
Grand Rapids, Mich.

Containers for Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. Special attention is directed to our assortment of Friction-top Pails and to tin cans of $\frac{1}{2}$, 1, and 5 gallon capacity. Get full information, prices, and samples.

The A. I. Root Company, - - - - - Medina, Ohio.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

See our special sale of honey on advertising page 13 of this issue. THE A. I. ROOT CO., Medina, Ohio.

WANTED.—A barrel of amber honey. Quote prices delivered, f. o. b., Cameron, Tex. FRANK McLERRAN.

FOR SALE.—Comb and extracted honey, fine quality. THOS. ATKINSON, Cozad, Neb.

Choice buckwheat honey in 60-lb. cans at 8 cts. per lb. G. H. ADAMS, box 184, Schenectady, N. Y.

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—Finest quality white extracted and comb honey. Write for prices. STEARNS & FOX, Fruitdale, S. D.

FOR SALE.—Finest quality clover and buckwheat honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Several tons white extracted honey, fine flavor. Sample, 5 cts. SUNNY SOUTH APIARIES, Box 197, Augusta, Ga.

FOR SALE.—Pure honey in 1 and 5 gallon cans and barrels. Sample, 10 cts. Price on request. I. J. STRINGHAM, 105 Park Place, New York City.

FOR SALE.—Extra quality buckwheat honey in 60-lb. cans, two cans in a case, at 8 cts. Sample on request. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—4000 lbs. of choice clover and amber extracted honey put in 60-lb. cans; 8½ cts. per lb. takes the lot. JOHN R. BROWN, Rt. 2, Fall Creek, Wis.

FOR SALE.—White-clover honey in 60-lb. cans. Ripened on the hives. There is nothing finer in every respect. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Fine quality of sweet clover and alfalfa extracted honey in 60-lb. cans, \$9.00 per case of two 60-lb. cans. Write for prices on car lot. W. A. CHEEK, Merino, Colo.

FOR SALE.—Finest quality white-clover extracted honey in 60-lb. cans. State how much you want, and I will quote prices. LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—No. 1 white comb, \$3.50 per case; No. 2, \$3.00; 24 sections to case, six cases to carrier; clover extracted, two 60-lb. cans to case, 9 cts. QUIRIN-THÉ-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Light amber and white extracted honey, and the comb. Liberal sample, 10 cts. Have you any to sell? SEED AND POULTRY SUPPLY CO., Dept. H-1, St. Louis, Mo.

FOR SALE.—Our crop of "Elite" white-clover extracted honey. None better produced. Also raspberry extracted, blended with willow-herb; nearly as white as the clover; good body and flavor; 8 cts. per lb. Sample of either free. Address E. D. TOWNSEND & SONS, Northstar, Mich. (Formerly at Remus.)

FOR SALE.—Extra-fine extracted clover honey. Have had no better in 25 years. Tiered up and well ripened before extracted. It is in new 60-lb. (net) square cans, two in a box. Price on request. DR. C. G. LUFT & SON, Fremont, Ohio.

Dealers and producers who buy honey, kindly ask for a late number of the *Review*, giving a list of National members having honey for sale. Many carloads are listed in the October number. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

Pure Raspberry Honey. Left on the hives until all sealed and ripened; quality fine, thick, and rich. Raspberry honey was a very short crop this year. If you want some, better order soon. Put up in new 60-lb. tin cans; price \$6.00 a can. Sample by mail, 10 cts., which may be applied on order for honey. ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTS AND EXCHANGES

WANTED.—To hear from owner who has a good farm for sale. Send description and price. NORTH-WESTERN BUSINESS AGENCY, Minneapolis, Minn.

Good 40-light acetelene-gas generator, used two years, displaced by electricity; \$10.00. Exchange for good clover or basswood extracted honey. J. T. SHEDD, New Braintree, Mass.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

In 1912 and '13 our bees wintered perfectly in the Eureka concrete case. Write for circular and learn about them. B. T. BOSSERMAN, Williamstown, O.

New crop of extra-fine quality alfalfa seed, \$7.00 per bushel; sacks, 25 cts. extra. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—A full line of beekeepers' supplies, also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—One hand-operated paper-cutter and one check-protector, a device for protecting commercial paper. The last named will be useful in business houses, and the first mentioned will be of use in a small printing establishment. I will sell either at far below cost. Correspondence solicited.

MRS. W. Z. HUTCHINSON, Flint, Mich.

HELP WANTED

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

REAL ESTATE

FOR SALE OR TRADE.—Colorado, Utah, Idaho land.
W. A. CONNELLY, Emmett, Idaho.

FOR SALE.—Small farm suitable for bees, poultry, and truck; large house, fine shade, fruit. In one of the best buckwheat-honey sections in the State. Near trolley.
THOS. ROTHWELL, Chemung, N. Y.

FOR SALE.—My bees and fixtures; no disease; lots of alfalfa. Will lease good five-room house, truck-patches, etc. Plenty of employment when not busy with bees. If interested, write me; but don't write unless you mean business.
H. A. BUSHY,
Rydal, Republic Co., Kansas.

Virginia is the land of performance. Farmers live well and make money. Short winters, long growing season, and abundant rainfall enable two and three crops a year. Write F. H. LABAUME, Agt. Agt., Norfolk & Western Ry., Room 246 N. & W. Bldg., Roanoke, Va. Booklets, maps, etc., on request.

DON'T PAY RENT.—Buy Southern land; buy all you can; prices now extremely low; natural increase will return your money in a few years; well farmed, annual profits will run even more. Dairying, live stock, poultry, fruit, and truck—these are a few of the big money-making lines. Write now for "Southern Field" Magazine and land lists.

M. V. RICHARDS, Land and Industrial Agent,
Room 27, Southern Railway, Washington, D. C.

BEEES AND QUEENS

FOR SALE.—50 to 200 colonies, eight-frame, first-class.
E. F. ATWATER, Meridian, Idaho.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALRATH, Antioch, Cal.

The best of untested queens, 75 cts. each; \$8.00 per dozen. Bees by the pound and nuclei for sale. Ask for prices. WM. ATCHLEY, Beeville, Bee Co., Tex.

FOR SALE.—About 50 more queens to sell; same as advertised before; untested, 75 cts.; tested, 85 cts.; select tested, \$1.00.

J. M. GINGERICH, Rt. 3, Arthur, Ill.

Three-banded Italian bees and queens; nuclei in pound shipments our specialty—the kind that will pay you profit. Address

DEROY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—180 colonies of bees, eight-frame hives, over 600 supers; extra hives, tools, new honey-house, spring wagon, etc., 8 miles from Reno, Nev., one of the best locations in the State. Price \$1000.

H. F. HAGEN, Elverta, Cal.

Phelps' Golden combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.

C. W. PHELPS & SON,
3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Golden Italian queens that produce golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price, \$1.00; 6 for \$5.00.

WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Malvern Hill, Va.

FOR SALE FOR CASH.—700 odd colonies of bees with complete outfit for running them for comb and extracted honey. Also about 4 acres of land 1½ miles from city; bee-house, horses, wagons, and a few supplies off the market Jan. 1. This outfit is located in the heart of the Mesilla Valley under the Elephant Butte project. HOPPER & MCBRIDE,
Box 262, Las Cruces, N. M.

POULTRY

Rhode Island Reds. High grade stock for sale. Write me.
E. O. WALTZ, Medina, Ohio.

Single-comb White Leghorns.—\$1.00 each; pullets and cockerels, yearlings and cocks; shipped anywhere. As many as desired. Write for catalog.
WOODWORTH FARM, Wilton, Conn.

FOR SALE.—Indian Runner ducks. Stock bred from first-prize hen and first-prize drake, Ohio State Fair. Fine birds, and unequaled egg-producers. Guaranteed birds at reasonable prices.

L. G. CARY, Trimble, Ohio.

MISCELLANEOUS

Beagle hounds, pups, and trained dogs; fine stock and fair prices. Photos.

D. S. HALL, Marshfield, Vt.

FOR SALE.—Airedale pups, sire of both parents Champion Soudan Swiveller; 27 Champions in pedigree.
W. A. LOWBER, Burlington, N. J.

FOR SALE.—5 x 7-view camera, with anastigmat lens and outfit complete; also 5 x 8 Kelsey printing-press. Correspondence solicited.

C. B. FALOR, Mogadore, Ohio.

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$\$\$\$-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on common stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

A. I. Root

OUR LITTLE BOOK, "THE TRUTH ABOUT SWEET CLOVER."

Many of you may like to know what sort of reception the book is getting. Well, the clerk who has charge of that department just informed me that 49 applications came in yesterday, October 20, for the book. The greater part of them came from Oklahoma.

HOME-SEEKERS' EXCURSION TO FLORIDA.

In answer to many inquiries, permit me to say that on Nov. 4 there will be an excursion from Cleveland to Bradenton, Fla., and many other points in that State, at the low price for the round trip of only \$35.50. This includes the return trip with 25 days' limit. The same low fare may be had every first and third Tuesday. You local agent will be able to give you prices at your place and further particulars. If, however, you wish to stay all winter, as we do, it will cost you about one-half more. Mrs. Root and I are planning to start Nov. 4.

THE HIGH COST OF LIVING AND THE CHICKEN BUSINESS.

There are a good many people who do not seem to understand that there are two sides to the matter when things go "a soaring" that people must have. For instance, when my good friend the grocer tells me that eggs are down to 20 cts., instead of being up to 40, I try to look pleasant and tell him while it is bad for me it is good for poor people who want eggs, and I try to feel glad, even if my chickens temporarily almost fail to pay for their feed. And along this same line I presume we chicken folks ought not to feel glad when the price goes up to 40 cts. or more. And it is *not* myself alone, but there are many folks, especially in these latter days, who have more or less chickens in their back yard, and these people often have eggs to sell; and it is certainly a good thing for these humble, hard-working people when they get a good price—I might even say a big price—for eggs and chickens. If the people who run around with their expensive automobiles were obliged to pay a dollar for fresh eggs for breakfast, and if the dollar all went into the pocket of the workman, it is not so *very* bad after all. The poultry back of the little home gathers up the fragments from the table so that nothing is lost. And while we are about it I think it pays to have a bone-mill so as to grind up the bones that might otherwise be "kicking around;" and you can generally make arrangements with your butcher to let you have the bones and gristly pieces of meat that help along a big lot. The manufacturers of these bone-mills have some very pretty little books containing valuable suggestions to poultry-keepers, which they send out free of cost. The F. W. Mann Co., Milford, Mass., have advertised with us for many years, and I always enjoy getting a little pamphlet in regard to their bone-cutter. If you have not seen one, you had better send for it. In rearing little chicks and ducks it is almost impossible to get the best results without a certain amount of ground meat; besides the satisfaction it gives to see the little darlings chase each other around the yard for this thing that their nature seems really to *demand* to help make bones and feathers.

"POPCORN FOR THE HOME."

The above is the title of Farmers' Bulletin 553, and may be had free of charge on application to the Department of Agriculture, Washington. I have long been aware that popcorn is a valuable and healthful article of food—that is, if grown on the farm and popped by the farmer's children. If you buy it on the streets at the popcorn stands or wagons, it is too much of a roundabout way to "reduce the high cost of living." If the farmer's children grow it in the garden and pop it themselves it is not only a short cut from "producer to consumer," but the "producers" in this case do not, as a rule, command very big wages. In our family of seven children, years ago, popcorn ground in a coffee-mill and eaten with milk used to be a favorite article of diet, and I believe now I would rather have it than any of the cereals put up in packages to be had at our grocery.

I think it will pay you to send for this bulletin.

It tells just how to manage popcorn to the best advantage, discusses and pictures the various corn poppers, including a home-made one that could be made by any boy, etc.

You will notice I have spoken rather discouragingly about buying your popcorn at the popcorn wagon—that is if you wish to reduce the high cost of living; but if the boy on the farm who raises the corn chooses to pop it and carry it to market, that is turning the whole matter around the other way. When I am riding on the cars I am always glad to see the "popcorn" boys, and I try to have some nickels ready so as to buy a package of corn, whether I want it or not. One reason why I do not eat it myself, instead of giving it to some hungry urchin on the cars, is because I know it is not best for me (an old man) to eat any thing, not even popcorn, between meals. If I can get hold of a package at breakfast or dinner time, then the popcorn is all right; but it needs to be chewed very thoroughly. Do not forget that, if you have to be careful about what you eat. By the way, this bulletin reminds me of something I had almost forgotten. There are a great many varieties of popcorn. They tell us the seedsmen catalog as many as two dozen, and some of them are beautifully colored. These little ears of colored corn always please the children. God bless the boys (and girls) who like the fun of helping to grow different kinds of popcorn in their own garden; and after it is grown, boys and girls who help to reduce the high cost of living by popping it themselves in their own home.

Convention Notices

The New York State Association of Beekeepers' Societies will hold its next annual meeting in Rochester, Dec. 2 and 3, 1913. We expect to have the usual good time renewing old acquaintances and forming new ones, and learning from the advice and experience of those working in our chosen field. All those interested in beekeeping are urged to be present. You can not afford to stay away, as we often get advice free that will bring us many dollars.

Camillus, N. Y.

IRVING KINYON, Sec.

The 23d annual meeting of the Illinois State Beekeepers' Association will be held at the State House, November 5 and 6, 1913.

Good hotel accommodations can be had at the New Argus Hotel, 214 S. 4th St., European plan, rooms 50 cts. and up.

Our President, E. J. Baxter, of Nauvoo, Ill., will preside. No formal program. The question-box will be made a leading feature, coupled with the reading of prize essays, as follows: \$5, \$4, \$3, and \$2 for 1st, 2d, 3d, and 4th best essays—not to exceed 500 words, and to be read by the parties writing them.

While it is not defined, it is supposed the parties are to be beekeepers, or members of beekeepers' families. There are to be no arguments on the papers read, and no criticisms; and when all read, they will be passed upon by a ballot of the members of the association, as shall be directed by the convention.

This has been a fairly good year with beekeepers, and we hope to see them show how thankful they are by coming out and telling it to their fellow-members.

Miss Stewart, of Chicago, whom we had last year, will be our reporter, and we hope every one who attends will feel inspired to say something good for her to catch for our thirteenth annual report.

We want a good number to answer roll-call in a picture for those members who do not attend to pass judgment on.

JAMES A. STONE, Secretary.

FLORIDA—A "CORRECT KNOWLEDGE" OF IT.

You are doing the best work imaginable, friend Root, in spreading a *correct* knowledge of what can be done and what not, in our grand old Florida.

DeLand, Fla., Oct. 17.

EDW. G. BALDWIN.

The A. I. Root Co.:—I had very good luck with my bees this summer, getting over 800 sections nice honey, besides what we used; over 700 sections finished and sealed. I had four swarms, spring count, increasing to nine this summer.

Ohio City, Oct. 2.

F. G. PENNELL.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse, and had nothing the matter with it. I wanted a fine horse. But I didn't know any thing about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about



the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear through the fibers of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1127 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 355 Yonge St., Toronto, Ontario.

Kind Words from our Customers

Dear Mr. Root:—I wish to thank you for those blessed Home talks. I have been greatly uplifted by them. I also enjoy very much reading the temperance articles. GLEANINGS ought to be read in every American home. Mrs. H. G. HANSON.

Osakis, Minn., Sept. 28.

Mr. Root:—Bless God from whom all blessings flow. I am not a beekeeper, but I delight in GLEANINGS greatly in our home. Thank God for the July 15th issue. I delight to hear from all over the world the wisdom of God.

Henniker, N. H., Sept. 16. E. E. PILLSBURY.

Give my respects to A. I. Root, who writes Home notes. Bang the whisky out, every time. Our colony paid duty (by government returns) on four million pounds' worth of whisky and beer. God knows what the people paid retail. The figures quoted are wholesale. All are working for a bare majority vote here. Palmerston, Otago, N. Z. J. H. APPLEYBY.

The A. I. Root Co.:—My bees have done splendidly this year. You recall I bought a tested Italian queen from you last summer. I have taken two colonies from her hive this season, and have already, Aug. 9, taken 180 lbs. of nice comb honey, and shall almost certainly get 30 lbs. more, if I can prevent swarming. The hive is now greatly crowded. I clipped her wings, so I think there is little danger of losing my queen. I have queened all my hives with her offspring, so I expect to see some honey next season. H. B. ARBUCKLE.

Dept. of Chemistry, Agnes Scott College, Maxwelton, W. Va., Aug. 9.

Mr. Root:—I wish to congratulate you, and thank you at the same time, for the splendid articles you have written for Our Homes in the last few numbers. If they have done as much good to others as they have to me (which they undoubtedly have), they certainly are fulfilling their mission, as I must confess that, since reading the same, and saying amen to them as you have done during that splendid sermon. I have read in the Bible daily—something I have not done, I am ashamed to say, for some time, and I truly hope that God may permit you to continue this good work for many years to come as I know your talks do fully as much good as many a millionaire's money.

I always read Our Homes the very last thing in GLEANINGS, thus enjoying the anticipation of reading something good at the last.

I have loaned GLEANINGS to some of my non-beekeeping friends to read your department, and they also are very much impressed with your helpful and instructive articles.

ALBERT MATER.

Gloversville, N. Y., Oct. 4.

In forwarding my renewal I wish to tell of my appreciation of GLEANINGS, especially its high moral tone and the effort to help us all to reach a higher plane of civilization and Christianity. Its expositions of frauds, humbugs, and catch-penny schemes are valuable to many of us who might often be swindled by slick advertisers. Much of the past thirty years I have read GLEANINGS, and though now living in town its High-pressure Gardening is very interesting, as well as its bee lore.

We have nearly 1000 lbs. of honey (extracted) from our bees this year.

A. I. R.'s department is also highly valued. Also its denunciation of drink and tobacco, and its stand on all moral questions.

We now have women suffrage here; also the initiative, referendum, and recall, and were leaders in the direct election of United States Senators. We have just recalled our county judge and one of the three county commissioners. While some blunders may be made with our new laws we feel that we have progressed, and are not likely to return to former methods.

We notice with pleasure Ohio's efforts toward advanced methods, and hope GLEANINGS may long flourish to help in the uplift of humanity.

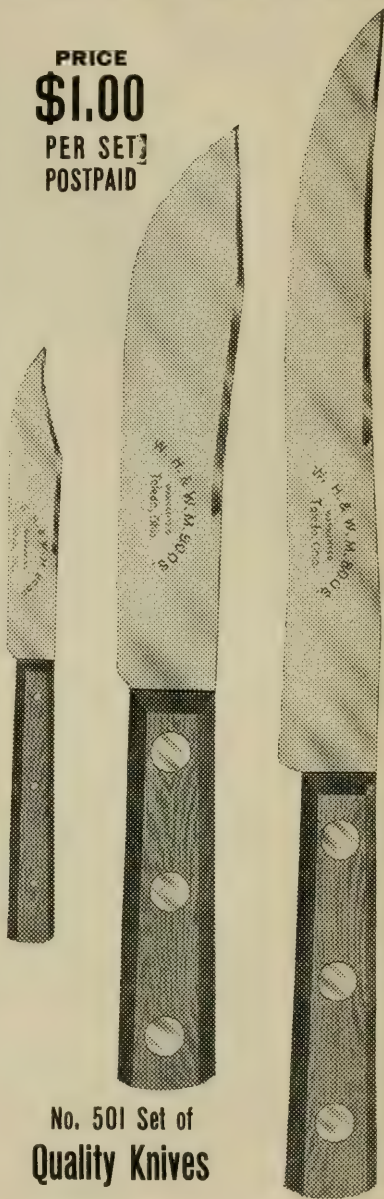
Oregon City, Ore., Sept. 8.

CLARK STUGE.

NO. 501 SET OF QUALITY KNIVES

OUR set of "QUALITY" KNIVES is made up of one 8-inch SLICER, one 6-inch BUTCHER, and one 3½-inch PARING-KNIFE. A combination of three of the MOST USEFUL SIZES and DESIGNS that one can have in his home. In presenting this set of knives we want to impress upon the trade the fact that these knives are all their name implies, **QUALITY IN THE STRICTEST SENSE OF THE WORD.** There is nothing better in the way of cutlery to be had for **IT IS IMPOSSIBLE TO MAKE ANY THING BETTER.** The Set is **MADE UPON HONOR THROUGHOUT** to the MINUTEST DETAIL. **BLADES** are of the **VERY BEST TEMPERED CRUCIBLE STEEL, SWEDGED, ETCHED, and FINISHED** with the Highest Polish it is possible to put on metal. **Handles** are **GENUINE COCOBOLO, Beveled Edges, Through Tang** with **Three Large Brass Saw Rivets.** We **ABSOLUTELY GUARANTEE** the **QUALITY** of this set of knives to be **Strictly First Class in Every Way** and the **BEST VALUE EVER OFFERED.** **LIST PRICE** the set \$1.00 postpaid.

PRICE
\$1.00
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Premium Offer

We will send this complete set of knives postpaid to any reader who sends us one new yearly subscriber to *Gleanings in Bee Culture* at \$1.00 per year, or the same for four new six-months-trial subscribers at 25c. each.

The A. I. Root Co.
Medina, Ohio

No. 501 Set of
Quality Knives

The A. I. Root Co.:—I must say I have been well pleased with Root quality and service. The queen cage candy was just right and the service prompt. I hope to be a *GLEANINGS* advertiser another year.
Pentz, Pa., Sept. 23. J. B. HOLLOPETER.

By the way, we received a full colony hive from you last year in May (outfit No. 6). Since then we have four colonies, and two of them have given us 75 lbs. of comb honey each, and 50 more each coming, very fine white-clover comb honey.
Columbus, Ohio, July 24. A. H. SCHORY.

The A. I. Root Co.:—The colony of bees which I got from you last year has given me two swarms, very strong ones, and all are making fine honey crops. The new ones are also doing well.
Fairhope, Ala., Sept. 1. E. W. JEFFERSON.

I bought your beginner's outfit this spring. The bees have never swarmed, so far as I know; but they have stored a good bit of honey. All my four supers are on, three being full, 28 sections each.
Mrs. JOHN D. FEARHAKE.
New Canaan, Conn., Aug. 4.

EARLY-ORDER CASH DISCOUNTS

Apply Here just as they
do at the Factory

As Southwestern distributors of **ROOT'S BEEKEEPERS' SUPPLIES**, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our beekeeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous goods, and the prices in our special catalog are the same as their own. There is an extra saving for you in ordering from us—**FREIGHT**. Better give this your special attention before ordering from elsewhere.

THE CASH DISCOUNT ON EARLY ORDERS PLACED IN NOVEMBER IS 5 PER CENT.

This applies to every thing in the way of beekeepers' supplies except a few special articles. On large general orders we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

REMEMBER WE MANUFACTURE THE FAMOUS WEED PROCESS COMB FOUNDATION.

We have a large demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 5 per cent.

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Cleanings in Bee Culture



VOL. XLI. NOV. 15, 1913, NO. 22.

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The A. I. Root Company, Medina, Ohio

LEWIS BEEWARE**MEANS****GOOD QUALITY, SCIENTIFIC WORKMANSHIP
CAREFUL PACKING
EFFICIENT SERVICE**

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. Every Thing for the Beekeeper**

Take advantage of the early-order discount, send us your list of requirements, and we will quote you our very best factory prices and discounts.

Having recently constructed an eight-car-capacity kiln, and having enlarged our power plant, we shall be able to handle your orders to the best advantage.

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Send for our foundation samples and Red Catalog, postpaid.

W. T. Falconer Manufacturing Company, Falconer, New York
Where the good beehives come from

The Western Honey Bee

is making good as the result of organized co-operation in the West. Our contributors write about colonies of bees by the hundreds, and honey in car lots. Be one of our family, and help us and yourself by subscribing and writing for the W. H. B. \$1 a year. Sample free. ADVERTISERS get results for money spent with us. Rates on application. California State Bee-Keepers' Association, owners.

Business Office Address

The Western Honey Bee
Covina, California.

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NEW CROP HONEY
New York and Pennsylvania

COMB**ESPECIALLY**

Write us, stating quantity, quality, style of sections, when ready for shipment, etc. Will buy or handle on commission.

Hildreth & Segelken, New York

265-7 Greenwich St.

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**HOW FAR CAN A BEE
SEE?**

That question has been argued “time and again,” but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think!

The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . . It teaches people to see the wonders and beauties of nature.

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Edward F. Bigelow, Editor,

The Agassiz Association, Inc.**ARCADIA :**

Sound Beach, Connecticut

“Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time”
It Pays to Buy LEWIS BEEWARE—Always the Same—Always Standard

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HONEY MARKETS

The prices listed below are intended to represent as nearly as possible the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached on all sides and evenly capped, except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, comb firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the

wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened; weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb, 16 to 17; white extracted, 10 to 11. Beeswax, 30. There is an active demand for white comb honey.

Boston, Nov. 5.

BLAKE-LEE CO.

INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cts. in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cts. in cash or trade.

Indianapolis, Nov. 5.

WALTER S. POWDER.

LIVERPOOL.—Our honey market has been extremely dull for the past fortnight, and sales are retail of all descriptions. Beeswax market is very firm; 45 bags of Chilean sold at \$37.92 to \$30.08 per cwt., thus clearing the first-hand stock.

Liverpool, Eng., Oct. 29.

TAYLOR & CO.

CHICAGO.—Little change in market since our last report, yet the supply is larger and prices are weak—that is, a buyer of quantities can get concessions from prices asked. Several large consignments of Western honey are here, and more are following. Beeswax is steady, and meets with ready sale at former prices.

Chicago, Nov. 4.

R. A. BURNETT & CO.

ZANESVILLE.—There is practically no change in the market here. Best grades of white comb bring in a jobbing way 16 to 17; wholesale, 18 to 19; best white extracted, 9½ to 11, according to quantity. Arrivals are fairly liberal, and the demand continues good. Producers of beeswax are receiving 30 cts. cash, 32 in exchange for supplies.

Zanesville, Nov. 4.

E. W. PEIRCE.

Honey reports continued on page 5.

**30 DISTRIBUTING
HOUSES**

FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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ALBANY.—The honey market is quiet, with light receipts and good demand. We quote fancy white clover at 16 to 17; good 15 to 16; fancy buckwheat, 14 to 14½; good 13 to 14; extracted is slow; buckwheat, 7½ to 8; amber, 7½ to 8; white clover, 8½ to 9. Beeswax, 32.
Albany, Nov. 6.

H. R. WRIGHT.

DENVER.—Our local market is well supplied with honey, and jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice ditto, \$2.57; No. 2 ditto, \$2.43; extracted white, 8 to 9 cts. per lb.; light amber, 7 to 7½ cts. We are in the market for beeswax, and pay 30 cts. per lb. in cash, 32 cts. in trade, delivered here.

Denver, Colo., Nov. 6.

F. RAUCHFUSS.

THE COLORADO HONEY-PRODUCER'S ASSOCIATION,

SCHENECTADY.—Many retail dealers in honey have now secured sufficient stock to last several weeks, and the demand at present is not so large on that account, and there is quite a stock on our market, with no change of prices. We quote fancy white at 16 to 18; No. 1, 15 to 16; mixed and buckwheat, 12 to 14, according to style and quality; extracted white, 9 to 9½; dark, 7½ to 8, in 60-lb. cans and kegs.

Schenectady, Nov. 6. CHARLES MACCULLOCH.

NEW YORK.—The demand for comb honey is good, especially for fancy white stock. While the crop in the Eastern States has been short, some large shipments of western alfalfa comb honey have arrived, and prices are now somewhat declining. We quote fancy white at 15 to 16; No. 1, 14; lower grades, 12 to 13; dark, 10 to 11. Extracted is in fair demand, with sufficient supply, and prices ruling about the same as our last quotation, with the exception of West Indian, which is rapidly declining in price, and selling at 65 to 70 cts. per gallon. Beeswax is steady at 31 to 32.

New York, Nov. 5. HILDRETH & SEGELKEN.

CINCINNATI.—The demand for both comb and extracted honey is not as brisk as it should be for this time of the year. We are receiving quantities of both comb and extracted honey. Fancy white-clover comb honey is selling at 16. No. 1 white is selling at \$3.50 per case of 24 sections. Off grades do not sell. White-clover extracted honey in 60-lb. cans is selling from 9 to 9½. Amber grades are selling from 7½ to 8½, according to grade and quantity purchased. Beeswax is selling from \$33.00 to \$35.00 per hundred. The above are our selling prices, not what we are paying.

Cincinnati, Nov. 3. C. H. W. WEBER & Co.

The A. I. Root Co.—Of the three tested queens I received of you last fall, two of them brought in the goods. *** From each of the two tested queens I have six cases—168 sections to the present. The seventh case, put on underneath, is also well filled but not completed, while there will be another case to go underneath that one to-morrow. This crop is all white clover and alsike. This is an excellent record, but it is not yet done. We have a heavy flow of white clover running now, and it has not ceased since it began about June 10.

Highgate, Ont., Can., Aug. 12. F. W. BEATON.

LOGICAL.

"Ma, do cows and bees go to heaven?"
"Mercy, child, what a question! Why?"
"Cause if they don't, the milk and honey the preacher said was up there must be all canned stuff."

HUSTLERS, INDEED.

Canvassers—Bright, hustling young men to take orders for pure honey direct from the bees.—*Daily News.*

IDLE MONEY

Money lying idle or earning a small rate of interest is promoting waste. The Savings Deposit Bank Company maintains a department devoted to

BANKING BY MAIL

and invites savings accounts in any amounts from \$1.00 upward, paying interest at the rate of 4%, compounded semi-annually. You can with safety and privacy open an account by mail.

The SAVINGS DEPOSIT BANK COMPANY

Medina, Ohio

ASSETS OVER ONE MILLION DOLLARS.

A. T. SPITZER, Pres.
E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

INCREASE Your SALES

... By a Liberal Distribution of Our Booklet ... THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back cover page affords space for a display advertisement. As this booklet contains no advertising whatever, it can be employed with telling effect. Better order your supply early. Sample and prices in quantities on application.

Fifty-eight pages: one hundred and twenty-two valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

Address the Publishers

THE A. I. ROOT COMPANY, MEDINA, OHIO

Boston New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street - BOSTON, MASS.

GET TOP NOTCH PRICES FOR YOUR HONEY BY USING LEWIS SECTIONS AND SHIPPING CASES

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G. B. Lewis Company, Watertown, Wis.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

A. L. BOYDEN, Advertising Manager.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

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SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

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No medical or objectionable advertising accepted.

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CLEANINGS IN BEE CULTURE FOR 1914

The Magazine for the Beginner, Back-lotter, and Specialist Beekeeper

For several years we have been doing our best to make GLEANINGS an indispensable publication for the wide-awake beekeeper whether he has but one colony, a small suburban apiary, or a series of out-apiaries numbering hundreds of colonies in all. We believe we have never received such enthusiastic approval of our efforts as we received in 1913 when hundreds of letters from our friends told of their appreciation. We wish that we might print a number of them here, but we prefer to utilize the rest of the space for outlining our plans for 1914.

For 1914 we shall continue the special numbers, the feature which has so delighted our readers during the last three years. In deciding just what subjects to take up, we have not selected topics at random, for we have been guided by the expressions of the majority.

JANUARY 1—BEES AND POULTRY.

—We think we are safe in saying that no special number that we ever published proved so popular as our February 15th issue for 1912. In getting out another special number devoted to the interests of poultry-raising and beekeeping, we propose to surpass our former efforts and to get together the best material possible on poultry-raising from the beekeepers' standpoint.

FEBRUARY 1—BEES AND FRUIT.—

Our March 15th issue for 1912 has been used far and wide by beekeepers and fruit-growers alike to show the value of bees in large orchards. In the two years that have elapsed, however, so much new material has developed that in order to be entirely up to date it is really necessary to have another special number on the same subject. We have a wealth of material that has never before been given to the public. Extensive fruit-growers who are not especially interested in *honey*-production will tell of the value of bees in orchards.

MARCH 1—BEEKEEPING IN CITIES.—

Probably few beekeepers realize the number of beekeepers there are in every large city. City beekeeping is a most interesting topic, and in addition to stories of beekeeping told by professional men we shall have discussed various problems connected with bees in attics, on roofs, and in back lots. We also have a *true* story of a beekeeper in a city who was fined \$100.00 because his bees were considered a nuisance, and who afterward appealed to a higher court and won out. Good story.

APRIL 1—BREEDING.—Ever since we first began having special numbers there have been requests on the part of a good many of our readers for a special number on breeding. We are glad that we are able to arrange for it this year, for it is a fact that very little is known in regard to breeding bees. Breeding is one of the most important subjects connected with our pursuit.

We shall publish special articles by noted queen-breeders on qualifications of breeding queens. Queen-rearing both for the small beekeeper and the specialist will be fully discussed.

JUNE 1—MOVING BEES.—We ourselves expect to move three hundred colonies of bees to Florida, get a good honey crop, double the number of colonies, and move them back again in the spring. Details of moving by boat, wagon, auto-truck, and by rail will be fully described and illustrated, and other large beekeepers having experience along this line have also promised articles for this number.

AUGUST 1—CROP AND MARKET REPORTS.—

There has never yet been a systematic effort put forth for the compiling and publishing of comprehensive crop and market reports from various parts of the country. In 1914 we are going to make the effort of our lives to get telegraph reports from important fields, such as the clover-belt, Texas, Colorado, Idaho, and California, etc. These will be published right along as soon as we can get them, but in this August 1st issue we shall have a grand summary of the crop reports and conditions of the market in general. No beekeeper should miss this important number.

SEPTEMBER 1—WINTERING.—We have not learned all there is to be learned in regard to wintering. A number of specialists are going to make experiments during the winter of 1913-14, which experiments will be published in this number. We shall also give our own experience summed up as to the feasibility of wintering northern apiaries in the South.

IS NOT ALL THIS WORTH WHILE?

We have now given you our plan for 1914. If you are trying to make the most out of your bees we feel sure you can not afford to miss such a wealth of information as the subscription price, \$1.00, will bring you.

See Special Notices, page 18.



**"If Goods are wanted Quick,
send to Pouder."**

Bee Supplies!

A bounteous crop of finest quality honey has been secured, and, resulting from the needs of beekeepers in supplies, I have experienced the busiest season that I have ever known. The demand for the Root Goods has been excessive, and I have been very fortunate in keeping my stock complete and filling orders promptly. To do this my helpers and myself were required to apply ourselves from fifteen to eighteen hours per day. We were, of course, glad enough to do this, but I am going to offer some attractive discounts for supplies to be used next year if ordered early, and this will reduce the task of having so much to look after at the busy season. I believe the discounts will be a mutual benefit to all concerned. I am always glad to quote lowest estimates on any list of goods.

A feature on which I am now specializing is sending goods by parcel post. If you are within 150 miles of Indianapolis I can have your goods delivered to your home at a very moderate cost, if the package doesn't weigh over 20 pounds.

MONONGAHELA, PA.

Walter S. Pouder, Indianapolis.

Dear Sir:—Comb honey arrived in excellent condition, and I am highly pleased with quality of the honey. I will say a good word about your business, and I appreciate your promptness and careful methods.

Yours,

EDWARD MAYHUGH.

Frequently a delay in delivering goods means a heavy loss to the beekeeper. If you are in need of more sections, foundation, shipping-cases, paper honey-jars, glass jars, or any thing required about the bees, I believe I can make it to your advantage to write me. My catalog mailed free to any address; but if more convenient you may use the Root catalog in ordering, prices being the same.

I am in need of more beeswax, and should be glad to have you send your wax here on a cash or trade basis, and you will find me prompt with returns.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.



Established 1885

We carry an up-to-date line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

WORK YOUR OUTYARDS

BY THE DOOLITTLE PLAN

His methods are fully explained in the fourth edition of

THE MANAGEMENT OF OUT-APIARIES

This is a revised edition of "A Year's Work in an Out-Apiary," containing the latest ideas of the author, Mr. G. M. Doolittle, of New York, telling how he has employed them and secured during a poor season an average yield of 114½ lbs. per colony. The 1913 edition is ready for mailing. Price 50 cents postpaid.

Order now of the publishers

THE A. I. ROOT CO., MEDINA, OHIO.

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey:

ALFALFA,	PALMETTO,
SWEET CLOVER,	ORANGE,
WHITE CLOVER,	LIGHT AMBER,
ALSIKE CLOVER,	DARK AMBER,
BASSWOOD,	BUCKWHEAT.

We have some very fine lots of Ohio, Michigan, and Wisconsin WHITE-CLOVER COMB HONEY. For those who have not secured a good crop, and are wanting some fine lots for their trade, we can furnish them any desired quantity.

Write for our special prices.

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Medina, Ohio

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We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. NEW 60-POUND CANS, two in a case, a specialty. FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

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"Griggs is always on the job."

THE BEEWARE BRAND MEANS SUCCESS INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

Inventory Season is Here

I have completed my inventory of Root's Bee Supplies on hand at my Syracuse warehouse, and my stock orders for 1914 goods has been sent to the factory at Medina, Ohio. If any customer or any beekeeper of New York State desires special goods I shall be pleased to send in the order to come with one of my cars to Syracuse.

I take this opportunity to thank my customers for their liberal patronage the past season, and solicit a continuance of the same.

November Discount, 5 per cent from Revised (Oct. 1) Prices

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NEW American Bee Journal

IT PLEASES

FRIEND DADANT:—Say, do you folks know that the Old Reliable is just more than forging to the front?

Yours truly,

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A. D. D. Wood.

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LET me send you an engine to prove that you can own a WITTE cheaper and easier than you can do without one. Let the engine earn its cost, while you pay for it.

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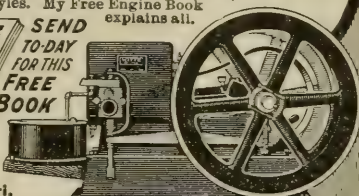
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JUDGE
ENGINES
and pick
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SEND
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Made in regular, standard sizes of 1½, 2, 4, 6, 8, 11, 12, 15, 20, 25, 30 and 40 H-P. Stationary, Portable, Skidded and Sawrig Styles. My Free Engine Book explains all.

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26-inch Hog Fence,....14c.
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Many styles and heights. Our large Free Catalog contains fence information you should have.

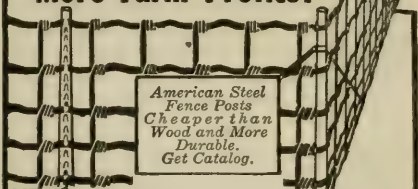
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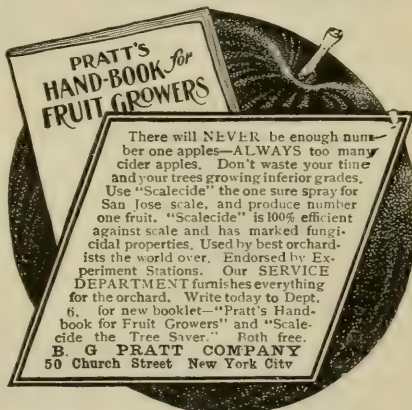
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Cuts from both sides of limb and does not bruise the bark.

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Saves Time, Trouble, Expense

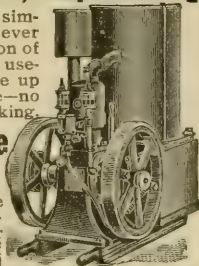
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Will run on distillate and gasoline; but kerosene costs less than half as much as gasoline. Besides, kerosene contains more heat units than gasoline. Result—more power—steadier power—at one-half the expense of fuel. Comes to you all ready to run feed grinders, separators, pumps, saws, electric light plants, etc. All sizes in stock ready to ship.

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How to Keep Bees

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This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood.

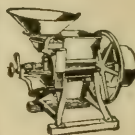
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Makes and burns its own gas and produces a pure white, steady, safe, 100 candle power light. No wick, smoke, dirt, grease or odor.

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Lighted instantly. Over 200 styles. Agents wanted. Write for catalog

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The IMPERIAL

is the only range with
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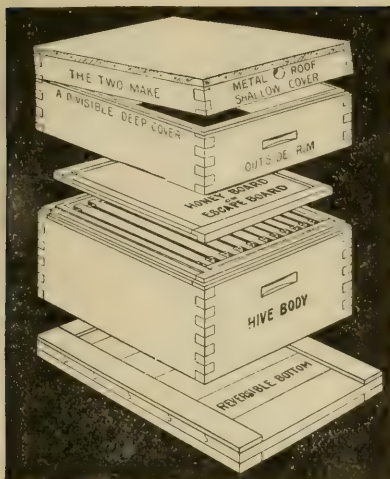
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Try it in YOUR OWN HOME—
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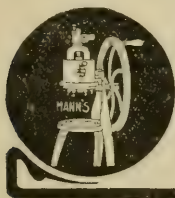


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Did you ever camp out in a single-wall cabin during a cold winter's night? If so you can appreciate the advantage of double walls. So can your bees.

Clear-stuff white-pine material, $\frac{7}{8}$ thick in the outer wall. Still selling at the old price, \$13.00 for five hives like cut. Immediate shipments. Order at once.

A. G. Woodman Co.,
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Make Your Hens Lay

You can double your egg yield by feeding fresh-cut, raw bone. It contains over four times as much egg-making material as grain and takes the place of bugs and worms in fowls' diet. That's why it gives more eggs—greater fertility, stronger chicks, larger fowls.

MANN'S LATEST MODEL BONE CUTTER

cuts easily and rapidly all large and small bones with adhering meat and gristle. Automatically adapts to your strength. Never clogs. Sent on 10 Days' Free Trial. No money down. Send for our free books today.

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Free Book Tells How

SOME REASONABLE SUGGESTIONS.

Bee-escapes,
Honey-extractors,
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Honey Labels,
Vells, Smokers,

Bee-brushes,
Wax-presses,
Hive-tools,
Tin Cans,
Cartons,
Bee Books,
Gloves.

You are doubtless in need of and ready to order one or more of these items. You want **ROOT QUALITY** and **PEIRCE SERVICE** of course. Why not include with this order the hives, supers, sections, foundation, etc., you will need for next season? Prices are lower now than they will be in the spring. Then it will be a great satisfaction to have every thing ready for immediate use when needed, and so be immune from the vexation and loss that may result from unavoidable delays during the rush season.

The flooded stock is pretty nearly closed out. A few odds and ends remain. If you can use any slightly damaged goods at very low prices, write for list.

Look the catalog over and make up your order now. Do not hesitate to order even any small article needed, as the lower parcel-post rates now in effect insure delivery at trifling expense.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
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Write for discounts—we can save you money

C. C. Clemons Bee Supply Co., Kansas City, Mo.
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BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street

IF YOU USE

bee supplies you should have our catalog.

We sell the best No. 25 jar made.

Heavy cartons that protect honey.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Aplarios, Glen Cove, L. I.

This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse, and had nothing the matter with it. I wanted a fine horse. But I didn't know any thing about horses much. And I didn't know the man very well either.



So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about

the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it doesn't wear the clothes, fray the edges, nor break buttons the way all other machines do.

It just drives soapy water clear through the fibers of the clothes like a force pump night.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me this way—H. L. Barker, 1127 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 355 Yonge St., Toronto, Ontario.

Wintering Bees

This is the title of a newly revised book by E. R. Root, going into full details on

Construction of Double-walled Hives

and in general

How to Winter Bees Outdoors

It will save many times its cost in one winter. . Price 10c.

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remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

NO MORE RABBITS

If you want a cheap and safe method for keeping RABBITS and BORERS out of your orchard, paint your trees with "SULFOCIDE" the new concentrated sulphur compound. Easy to prepare and apply. One application lasts one year. "SULFOCIDE" solves the rabbit problem. Write today for booklet, "SULFOCIDE, Sure protection from rabbits and borers." Address B.G. Pratt Co., 50 Church St., N.Y.



FRENCH'S

THE ORIGINAL POULTRY MUSTARD IN AMERICA

Write to us for information. Booklet and circulars free.

THE R. T. FRENCH COMPANY, Mustard-Makers
ROCHESTER, N. Y. Department D.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

See our special sale of honey on advertising page 9 of this issue. THE A. I. ROOT CO., Medina, O.

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—New extracted alfalfa honey in 60-lb. cans at 8½ cts. per pound. C. C. CLEMONS PRODUCE CO., Kansas City, Mo.

FOR SALE.—Finest quality, white extracted and comb honey. Write for prices. STEARNS & FOX, Fruitdale, S. D.

FOR SALE.—Finest quality clover and buckwheat honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Several tons white extracted honey. fine flavor. Sample 5 cts. SUNNY SOUTH APIARIES, Box 197, Augusta, Ga.

FOR SALE.—Pure honey in 1 and 5 gallon cans and barrels. Sample, 10 cts. Price on request. I. J. STRINGHAM, 105 Park Place, New York City.

FOR SALE.—Extra quality buckwheat honey in 60-lb. cans, two cans in a case, at 8 cts. Sample on request. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—4000 lbs. of choice clover and amber extracted honey put in 60-lb. cans; 8½ cts. per lb. takes the lot. JOHN R. BROWN, Rt. 2, Fall Creek, Wis.

FOR SALE.—White-clover honey in 60-lb. cans. Ripened on the hives. There is nothing finer in every respect. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Well-ripened buckwheat honey in 60-lb. cans, two to the case, at 8 cts. per lb. M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

FOR SALE.—Fine quality sweet clover and alfalfa extracted honey in 60-lb. cans, \$9.00 per case of two 60-lb. cans. Write for prices on car lot. W. A. CHEEK, Merino, Col.

FOR SALE.—Finest quality white-clover extracted honey in 60-lb. cans. State how much you want, and I will quote prices. LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—Light amber and white extracted honey, and the comb. Liberal sample 10 cts. Have you any to sell? SEED AND POULTRY SUPPLY CO., Dept. H-I, St. Louis, Mo.

FOR SALE.—2500 lbs. light buckwheat honey in 60-lb. cans, fine flavor. Sample 10 cts., which may be deducted from order. LEONARD MACBETH, Hudson, N. Y.

FOR SALE.—My 1913 crop of extra-fine quality of white clover and raspberry honey, 10 cts. per lb. Send for sample. GEORGE RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

FOR SALE.—No. 1 white-clover comb, \$3.50 per case; No. 2, \$3.00 per case. Fall comb No. 1, \$3.00 per case; No. 2 fall, \$2.50 per case; 24 sections to case, and six cases to carrier. QUINN-THÉ-QUEEN-BREEDER, Bellevue, Ohio.

Dealers and producers who buy honey, kindly ask for a late number of the *Review*, giving a list of National members having honey for sale. Many carloads are listed in the October number. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

Pure Raspberry Honey. Left on the hives until all sealed and ripened; quality fine, thick, and rich. Raspberry honey was a very short crop this year. If you want some, better order soon. Put up in new 60-lb. tin cans; price \$6.00 a can. Sample by mail, 10 cts., which may be applied on order for honey. ELMER HUTCHINSON, Pioneer, Mich.

FOR SALE.—Our crop of "Elite" white-clover extracted honey. None better produced. Also raspberry extracted, blended with willow-herb; nearly as white as the clover; good body and flavor; 8 cts. per lb. Sample of either free. Address E. D. TOWNSEND & SONS, Northstar, Mich. (Formerly at Remus.)

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 173 So. Water St., Chicago.

WANTED.—Honey and beeswax. State what you have, and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Extracted honey. State quantity and lowest price. THE ROCKY MOUNTAIN BEE CO., Forsyth, Montana.

REAL ESTATE

FOR SALE.—My bees and fixtures; no disease; lots of alfalfa. Will lease good five-room house, truck-patches, etc. Plenty of employment when not busy with bees. If interested, write me; but don't write unless you mean business. H. A. BUSHBY, Rydal, Republic Co., Kansas.

OWN AN ORCHARD IN VIRGINIA.—Plant it now and you will be independent in a few years. Good fruit lands on railroad, \$15 an acre, on easy terms. Write for particulars. F. H. LABAUME, Agt. Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

FOR SALE.—Splendid market garden on which has been expended years of scientific care. Eight acres in high state of fertility, underlaid with nearly three miles of tile. Good dwelling with gas, barn, poultry-house, alfalfa patch, canning outfit, greenhouse, and full set of tools. Fine location with excellent markets. A great opportunity for hustling gardener. Price \$4500. MRS. E. C. GREEN, Medina, O.

WANTS AND EXCHANGES

WANTED.—County agents to sell lubricating and auto oils, greases, paints, etc. Liberal commission to hustlers. Apply with references. State age, and whether single or married. THE STAR LUBRICATING OIL CO., 8714 Broadway, Cleveland, Ohio.

WANTED.—Copies of GLEANINGS IN BEE CULTURE for June 15, 1913. Copies with torn or soiled pages, or without cover pages, are not wanted. If any subscriber has a perfect copy of GLEANINGS for June 15, 1913, which he is willing to supply, will he please notify the A. I. ROOT CO., Medina, Ohio?

POSITION WANTED

WANTED.—Work in the bee business, beginning January or February. I am a thoroughly experienced beekeeper, having worked with bees for 12 years; single; 27 years old; have made examinations as a German school-teacher; took charge of 510 colonies of bees last season with a fine result.

E. A. KNEMEYER, Care of Wilson, Box 111, Windsor, Colo.

WANTED.—Situation by a thoroughly experienced man who sold his apiary of 235 colonies; is familiar with all cares belonging to apiculture; produced comb and extracted honey, reared queens in captivity; is familiar with disease; age 28, married. Desires a position for salary or large apiary on shares. No liquor or tobacco. F. & A. M. man. Reason for sale, better climate. References furnished. D. C. STAHLMAN, Knox, Albany Co., N. Y.

FOR SALE

FOR SALE.—Back volumes of GLEANINGS.
L. A. DOSCH, Miamisburg, Ohio.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices.
E. M. DUNKEL, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
WHITE MFG. CO., Greenville, Tex.

In 1912 and '13 our bees wintered perfectly in the Eureka concrete cage. Write for circular and learn about them.
B. T. BOSSERMAN, Williamstown, O.

New crop of extra-fine quality alfalfa seed, \$7.00 per bushel; sacks, 25 cts. extra.
R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—A full line of beekeepers' supplies, also Italian bees and honey a specialty. Write for catalog and particulars.
THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—One check-protector, a device for protecting commercial paper. Will be useful in business houses. Will sell at far below cost. Correspondence solicited.
MRS. W. Z. HUTCHINSON, Flint, Mich.

BEEES AND QUEENS

FOR SALE.—50 to 200 colonies, eight-frame, first-class.
E. F. ATWATER, Meridian, Idaho.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALRATH, Antioch, Cal.

The best of untested queens, 75 cts. each; \$8.00 per dozen. Bees by the pound and nuclei for sale. Ask for prices.
WM. ATCHLEY, Beville, Bee Co., Tex.

FOR SALE.—180 colonies of bees, eight-frame hives, over 600 supers; extra hives, tools, new honey-house, spring wagon, etc., 8 miles from Reno, Nev., one of the best locations in the State. Price \$1000.
H. F. HAGEN, Elverta, Cal.

Phelps' Goldenes combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.
C. W. PHELPS & SON,
3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Apiary of 100 colonies of bees in good condition; 75 extra hives, together with a complete set of implements, and every thing to work with; in a fine locality. For information write to
R. S. SHELTON, New Smyrna, Fla.

FOR SALE.—Golden Italian queens that produce golden bees for gentleness and honey-gathering. They are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.
WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Malvern Hill, Va.

FOR SALE.—One-half interest in apiary with new bee-house 24 x 40, with tools and power extractor. Bees have averaged as high as \$6.35 per swarm in good seasons; average \$5.00 this season. Good opportunity for an honest upright young man. Address
M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

FOR SALE.—200 colonies at \$3.00 per colony; will sell all or in lots of 25, 50, or 100, and allow purchaser the use of my yard for one year. White tupelo, button, and pussy willow in abundance. Honey-flow begins about Feb. 15. Have never been able to work bees to their full capacity, but have taken as much as 120 lbs. from one colony. Splendid opportunity. For full particulars write
J. B. MARSHALL, Big Bend, La.

FOR SALE FOR CASH.—700 odd colonies of bees with complete outfit for running them for comb and extracted honey. Also about 4 acres of land 1½ miles from city; bee-house, horses, wagons, and a few supplies off the market Jan. 1. This outfit is located in the heart of the Mesilla Valley under the Elephant Butte project. HOPPER & MCBRIDE,
Box 262, Las Cruces, N. M.

HELP WANTED

WANTED.—An experienced beeman between the age of 21 and 45 years; give age and experience in first letter; apiaries run for extracted honey.
HART DOUGLASS, Rt. 1, Holtville, Cal.

POULTRY

FOR SALE.—Buff turkeys, \$5.00 per pair; \$7.00 per trio.
J. L. SANSON, Rt. 1, Aberdeen, Miss.

Indian Runner breeding-ducks laying now. Utility and exhibition stock (pure white eggs) sent on approval.
DEROY TAYLOR, Box G, Lyons, N. Y.

Single-comb White Leghorns.—\$1.00 each; pullets and cockerels, yearlings and cocks; shipped anywhere. As many as desired. Write for catalog.
WOODWORTH FARM, Wilton, Conn.

FOR SALE.—Indian Runner ducks. Stock bred from first-prize hen and first-prize drake, Ohio State Fair. Fine birds, and unequaled egg-producers. Guaranteed birds at reasonable prices.
L. G. CARY, Trimble, Ohio.

MISCELLANEOUS

Beagle hounds, pups, and trained dogs; fine stock and fair prices. Photos.
D. S. HALL, Marshfield, Vt.

FOR SALE.—Airedale pups, sire of both parents Champion Soudan Swivelers; 27 Champions in pedigree.
W. A. LOWBER, Burlington, N. J.

SEED POTATOES.—I have a few more than I can use for seed next year. Will ship at once in small lots. Guaranteed blight-proof. For prices, write to
R. CLARK RICHARDS, Box 95, Clyde, Ohio.

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$\$\$-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.
PROVIDENCE SQUAB CO., Providence, R. I.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00.
A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list.
E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on common stands in 1908 and 1909 without a single loss. For prices, send for circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

GLEANINGS' BINDERS.

In order to close out our present stock of GLEANINGS binders we are making the following special rates:

Style C, 50 cts. postpaid. (This is a neat binder in art canvas cover of red.)

Style D, 75 cts. postpaid. (This binder is half leather, and is black.)

These binders are arranged to hold the issues of GLEANINGS temporarily as received from month to month. Each binder will hold about twenty numbers of GLEANINGS (more if crowded). Each copy can be inserted easily and securely as soon as received, thus making a convenient volume for reference. The binders are neatly lettered "GLEANINGS IN BEE CULTURE." These binders represent a bargain at this price, and we trust that our readers whose numbers of GLEANINGS are scattered around loosely will avail themselves of this opportunity to secure a good binder at a reduced rate.

GLEANINGS IN BEE CULTURE FOR 1914.

On page 7 of this issue we have taken you into our confidence, and have told you some of the plans which the Editorial Department has made in the way of seven special numbers of GLEANINGS IN BEE CULTURE for 1914—that feature which has been so popular during the past three seasons. These numbers will be better than ever before, and ought to be an inspiration to every beekeeper.

So many of our readers prefer to subscribe for more than a year at a time that we wish to mention our special rates of \$1.50 for GLEANINGS for two years; \$2.00 for three years, and \$3.00 for five years. (Canadian postage 30 cts. a year additional; foreign postage 60 cts. a year additional.)

Those who are interested in combination offers including other publications should turn to inside cover page of this number, for our 1914 CLUB-BING LIST. Special rates quoted upon request on combinations not listed. Our new subscription catalog of combination offers will soon be published. Send for a copy.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0139, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, 2½ x 6 hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0153, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, 2½ x 6 extra-thin-super mill, fair. Price \$10.00.

No. 0157, 2½ x 6 thin-super mill, in good condition. Price \$12.00.

No. 0160, 2½ x 6 hexagonal thin-super mill, in good condition. Price \$12.00.

No. 0165, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0167, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0176, 2½ x 6 extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, 2½ x 6 hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0183, 2½ x 6 hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0187, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0188, 2 x 10 round-cell medium-brood mill, in good condition. Price \$14.00.

No. 0191, 2 x 10 round-cell Pelham mill in good condition for this kind of mill. The bases of the cells are not natural shape, but the walls are regular. Price \$7.00. Sample mailed free if interested.

No. 0182, 2½ x 12 round-cell medium-brood mill in very good condition. Price \$20.00.

No. 0186, 2½ x 10 hexagonal cell medium-brood mill in good condition. Price \$20.00.

No. 0206 2½ x 10 hexagonal cell heavy brood Dunham mill in good condition. Price \$15.00.

No. 0207, 2½ x 6 hexagonal cell thin-super Dunham mill in good condition. Price \$10.00.

SPECIAL NOTICES

A. I. ROOT

DEATH OF E. C. GREEN.

I am pained to record the sudden and unexpected death of my old friend and neighbor E. C. Green, whose letter in regard to the dasheen appeared only in our last issue. An operation for gall-stones became necessary, and he failed rapidly soon afterward, his death occurring the last day of October.

Mr. Green, as our readers know, was a prominent horticulturist, his work on the tomato, especially, having been noted in these columns. Although a busy man, he always had time for his church. He rarely missed prayer-meeting, and he constantly gave of his time and strength for the upbuilding of the kingdom of God.

THE DASHEEN TUBERS TO BE SENT TO OUR SUBSCRIBERS.

Quite a few of the friends, especially a few living in climates where there is little or no winter, seem to have the impression that dasheen tubers can be mailed at once; and I suppose they could; but they are now so green and heavy on account of the moisture contained in them that it would probably take double the postage if sent before they are thoroughly dry. These grew from tubers we received from the Government last January. I hardly think we shall be ready to mail the tubers before January 1. Perhaps on my visit to Brooksville on the way to our Florida home I shall be able to find out more about it. Another thing, if sent before they are thoroughly dried out they will be liable to be injured by frost while in transit. Of course, these premium tubers will be sent by mail.

Convention Notices

The annual meeting of the New York State Association of Beekeepers' Societies will be held in Rochester Dec. 2 and 3, 1913.

Rochester, N. Y., Oct. 27. R. J. RULIFFSON.

The Indiana State Beekeepers' Association will hold its next annual session at the Statehouse, Indianapolis, Dec. 3. Live topics will be discussed. All are invited.

Redkey, Ind. GEO. W. WILLIAMS, Sec.

The California State Beekeepers' Association will hold its annual convention at the Y. M. C. A., Los Angeles, Cal., Dec. 9, 10, 11. I can not give you complete program at present, but it will consist of live topics—topics not only interesting but very important—in fact, concerning the vitals of our industry.

Dec. 9, 1:30 P. M., meeting of the Directors of the Consolidated Honey-producers of California (an incorporation belonging to the Association). At 2:30 P. M. there will be a meeting of the executive committee and advisory committee (which consists of the Presidents and Secretaries of the county clubs and local organizations), and will continue the 10th and 11th.

Newhall, Cal., Oct. 21. J. W. FERREE.

The annual convention of the Ontario Beekeepers' Association will be held at Toronto, in Victoria hall, Queen Street East, on November 19, 20, and 21, 1913. The program is as follows:

TUESDAY—7:30 P. M.

Meeting of officers and directors.

WEDNESDAY—9:30 A. M.

Minutes—Morley Pettit, Guelph, Secretary. President's address—Denis Nolan, Newton Robinson, Ont. First vice-president's reply—J. L. Byer, Mt. Joy, Ont. Second vice-president's reply—Miss Ethel Robson, Denfield, Rt. 1, Ont. Co-operation within

the county associations. Brief reports by county secretaries—Alex. Dickson, Glengarry Co., Blake Millar, Elgin Co.; R. C. Fretz, Lambton Co. All other county secretaries are expected to join in the discussion. Provincial co-operation started—brief report by secretary. A special meeting of those interested in co-operation will be held in the evening.

WEDNESDAY—2:00 P.M.

The office of director; what does it mean?—R. E. L. Harkness, Irena. The swarming problem—H. G. Sibbald, Claude, Ont. Question-box—D. Donaldson, Carleton Place, Ont.

THURSDAY—9:30 A.M.

Queen-rearing—John A. McKinnon, St. Eugene. The Association organ—Report by executive committee. Question-box—Jas. Armstrong, Cheapside, Ont.

THURSDAY—2:00 P.M.

Address—E. R. Root, Medina, Ohio. Address—Dr. G. C. Creelman, LL.D., president O. A. College, Guelph, Ont. Election of officers. Reports—secretary, treasurer, directors, committees, representatives to exhibitions, judges of honey.

FRIDAY—9:30 A.M.

The question of transportation—Geo. F. Kingsmill, O. A. C., Guelph, Ont. Notes from the year's work—Morley Pettit, provincial apiarist. Question-box—Chas. Blake, Snow Road, Ont.

FRIDAY—2:00 P.M.

Comb-honey production and marketing—Morley Pettit, Guelph, Ont. Extracted-honey production—John A. Lunn, Fingal, Ont. Unfinished business.

The following is the program of the annual meeting of the Minnesota Beekeepers' Association to be held at the mayor's reception room, court house, Minneapolis, Dec. 3 and 4:

WEDNESDAY FORENOON.

- 9:00—Hour for getting acquainted and "seeing the Treasurer."
- 10:00—President's Address.
- 10:30—"How My Bees Produced Thirty Tons of Honey this Season," E. L. Hofmann, Janesville.
- 11:30—"Sweet Clover as a Honey-producer," R. F. Hall, New Auburn.

WEDNESDAY AFTERNOON.

- 1:30—"Carniolans versus Italians," Rev. Francis Jager, St. Bonifacius.
- 2:30—"The Honey-producing Plants," Prof. Edw. J. Freeman, of the State Farm School.
- 3:30—Question-box.

WEDNESDAY EVENING.

- 8:00—Popular Program, Rev. Francis Jager in charge. Short talks on topics of interest to the general public.

THURSDAY FORENOON.

- 9:00—"Wintering Bees," Dr. L. D. Leonard, Minneapolis.
- 10:00—"Why We Use Smoke on Bees," Hamlin V. Poore, Bird Island.
- 11:00—Suggestion in regard to organizing a honey exchange, L. F. Sampson, Excelsior.

THURSDAY AFTERNOON.

- 1:30—Report on State Fair, Scott LaMont, Park Rapids, Superintendent of Apiary Department.
- 2:00—Report of the Inspector of Apiaries, J. A. Holmberg, St. Paul.
- 2:30—Business session—election of officers.

Mr. Beekeeper, if you are a small beekeeper, with only a limited knowledge of beekeeping, why not come to this meeting and hear those who know more than you explain their methods? There are beemen in Minnesota to-day who are enjoying a tremendous increase in their honey production by simply putting in practice suggestions caught at our annual meetings.

Or if you are a big beekeeper, why not mingle here with other big ones, compare notes, give and take pointers, and promote the interests of the organization so largely instrumental in securing the excellent laws favoring our Minnesota beekeepers?

PROPOSED AMENDMENT.

Attention of members is called to the following proposed addition to Article 3 of the Constitution relating to membership:

"Any person entitled to membership in this association shall automatically become a life member of the association on the payment of one dollar per year for ten consecutive years; or upon the payment of a

balance sufficient to make the sum of ten dollars at any time during the ten years, or upon the payment of ten dollars in a lump sum at any time."

C. A. PALMER, Sec.

The second annual convention of the Iowa Beekeepers' Association will be held at Des Moines, Ia., December 10, 11, 12, 1913. The following is the program:

WEDNESDAY, DECEMBER 10, 10 A. M.

Address by President, Frank C. Pellet, Atlantic; report of Secretary, S. W. Snyder, Center Point; report of Treasurer, C. H. True, Edgewood; reports of standing committees; appointment of committees.

1:00 P. M.

Some side lines on the farm, J. W. Jarnagin, Des Moines. Marketing the crop, W. P. Southworth, Sioux City. Beekeeping as a business, B. A. Aldrich, Smithland. Selling direct to the consumer, J. L. Strong, Clarinda. Ladies' informal meeting in separate room in charge of Miss Nina Secor, Forest City.

8:00 P. M.

Beekeeping in Europe, C. P. Dadant, Hamilton, Illinois.

THURSDAY, DECEMBER 11, 9 A. M.

Election of officers; arrangement of apiary, C. H. True, Edgewood. Sweet clover: what it will do for the farmers and beekeepers of Iowa, by Frank Coverdale, Delmar. This address alone will be well worth the time and expense of a journey across the State to every beekeeper, especially those combining beekeeping with other branches of agriculture.

1:00 P. M.

Beekeeping as a side line, and the fun of the thing, Hamlin B. Miller, Marshalltown; Modern methods of caring for extracted honey, E. R. Root, Medina, Ohio. Mr. Root's address will be followed by a demonstration of capping-melter, power extractor, and other machinery for the large producer, by Mr. Root and Mr. F. C. Scranton, of Des Moines.

8:00 P. M.

How may we increase the consumption of honey? Eugene Secor, Forest City. Increase, J. W. Bittenbender, Knoxville. Advertising, Dr. A. F. Bonney, Buck Grove. Comb or extracted honey, C. L. Pinney, LeMars.

FRIDAY, DECEMBER 12, 9 A. M.

Beekeepers' legal status, Russell E. Ostrus, Attorney for Iowa Beekeepers' Association, Des Moines. Treatment of disease, Edward G. Brown, Sergeant Bluff. Helps and hindrances in dealing with foul brood, J. W. Stine, Salem.

1:00 P. M.

Address, Prof. W. J. Kennedy, Ames. A season's work, E. W. Hall, Colo. Exhibits, R. H. Longworth, Polk City. Every member is invited to bring samples of his best product, and to come prepared to demonstrate any new method of interest.

INDIANA WILL OBSERVE HONEY DAY, DECEMBER 15.

George W. Williams, of this city, secretary of the Indiana Beekeepers' Association, has issued the announcement that Monday, Dec. 15, has been designated in Indiana as "Honey Day." Each person is asked to observe this day eating a little Indiana honey.

The busy little bee and the modest, unassuming clover, have given to Indiana and her sister States of the clover belt a bountiful crop of the most luscious and wholesome sweet. The present crop is said to be more delicious and appetizing than usual. Nowhere in the wide world can be found any thing that will compare with the present crop of Indiana clover honey.

Nor is the delicious honey the only gift these modest little workers bring to us. Every berry, apple, peach, plum, cherry, tomato, cucumber—in fact, almost all our fruits and vegetables—owe their pollination to the visit of some bee or other honey-gathering insect. Every pound of butter, milk, beef, or mutton is debtor to the bee for the delicate white-clover flavor, and there could be no white-clover pasture without bees to fertilize the blossoms.

In view of the many material benefits that the little toiler brings to us, it is eminently fitting that we pause for a moment and offer a modest tribute to this faithful ally and benefactor, and thus pay a debt of gratitude we owe. In so doing let us regale ourselves with a feast of honey, such as the ancient Greeks offered as fitting for the lips of the gods of Mount Olympus.—*Redkey Times*.

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Apply Here just as they
do at the Factory

As Southwestern distributors of **ROOT'S BEEKEEPERS' SUPPLIES**, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our beekeeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous goods, and the prices in our special catalog are the same as their own. There is an extra saving for you in ordering from us—**FREIGHT**. Better give this your special attention before ordering from elsewhere.

THE CASH DISCOUNT ON EARLY ORDERS PLACED IN NOVEMBER IS 5 PER CENT.

This applies to every thing in the way of beekeepers' supplies except a few special articles. On large general orders we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

REMEMBER WE MANUFACTURE THE FAMOUS WEED PROCESS COMB FOUNDATION.

We have a large demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 5 per cent.

Toepperwein & Mayfield Co.
San Antonio, Texas

Christmas Gifts for the whole Family

A few timely suggestions which will help
to solve the perplexing question of
Appropriate Christmas Remembrances.

FOR FATHER: A year's subscription to *Gleanings in Bee Culture* and a cloth-bound copy of the 1913 edition of *The A B C and X Y Z of Bee Culture*. . . \$2.50

Advanced Bee Culture, by the late W. Z. Hutchinson, . . . 1.00

Advanced Bee Culture and *Gleanings* one year, . . . 1.50

The Dollar Hen (a practical book on poultry culture) with *Gleanings in Bee Culture* one year . . . 1.50

Root Standard Smoker (tin) with *Gleanings in Bee Culture* one year, . . . 1.75

Langstroth on the Honeybee . . . 1.25

Langstroth on the Honeybee, with *Gleanings in Bee Culture*, one year . . . 1.75

FOR MOTHER: A set of *Quality Knives*, . . . 1.00

See page 19, Nov. 1 *GLEANINGS*. This set consists of three knives — one *SLICER*, one *BUTCHER*, and one *PARING-KNIFE*. Blades of best tempered crucible steel, and finished with the highest polish it is possible to put on metal. Good handles. A first-class set of knives.

One Set of Quality Knives and a year's subscription to *Gleanings in Bee Culture*, . . . 1.50

FOR DAUGHTER: A copy of *How to Keep Bees* . . . 1.00

By Anna Botsford Comstock. A charmingly written book which introduces the reader in a most interesting way to the bee, giving in clear language all of the details of beekeeping so essential to success of an amateur.

How to Keep Bees and a year's subscription to *Gleanings in Bee Culture*, . . . 1.50

A Set of Three Pairs of Scissors, . . . 1.00

Of different sizes, having elaborately designed gold-plated handles, nickel-plated polished blades. See *GLEANINGS*, Oct. 1, p. 18.

One Set of Scissors, with a year's subscription to *Gleanings in Bee Culture*, . . . 1.50

FOR SISTER: *Standard Domestic Science Cook Book*

Contains 33 departments, 140 illustrations, excellent cook book, and a year's subscription to *Gleanings*, . . . 2.50

FOR SON OR BROTHER: A copy of Dr. C. C. Miller's *Fifty Years Among the Bees*, . . . 1.00

Fifty Years Among the Bees, and *Gleanings in Bee Culture* one year, . . . 1.50

Subscription to *GLEANINGS* may be to one address and the rest of the combination to another, if so desired. . . Foreign postage on the Combination Offers, 60c extra; Canadian postage, 30c extra.

The A. I. Root Co., Medina, O.



A WONDERFUL CHRISTMAS OFFER

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THE FARM JOURNAL for four years } \$1.50
CHRISTMAS PACKAGE of 253 pieces }

The collection of cards, tags, Christmas labels, books, and letters included in the CHRISTMAS PACKAGE represents a very high value. We are able to offer the package to our readers through a special arrangement by which the tags, labels, etc., are purchased in quantities from manufacturers in Germany and in this country, at wholesale rate, thus making possible the very low rate at which the Farm Journal, Christmas Package, and Gleanings in Bee Culture are offered in combination.

We can not furnish the Christmas package except in combination with the Farm Journal.

What the Christmas Package Contains.

- 50 Santa Claus Stickers.
- 50 Autumn Leaf Stickers.
- 50 Assorted Stickers, Poinsettias, Holly, etc.
- 40 Assorted Gummed Stamps, perforated.
- 10 Large Gummed Labels, "Please do not open until Christmas."
- 12 Large Round Pastors, "A Merry Christmas."
- 1 1914 Triplicate Calendar.
- 4 Double Holiday Booklets, each in an envelope.
- 1 Large Folding Christmas Letter, enclosed in a fine white envelope, ready to mail.
- 6 Holiday Post Cards, Christmas and New Year's.
- 12 Enclosure Cards and Tags, all different designs.
- 12 Larger Enclosure Tags and Cards.
- 5 Beautiful Enclosure Cards, largest size.
- 253 Pieces in all.

Send your order early before the supply is exhausted.

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17c a Day

Opens the Way to Better Pay

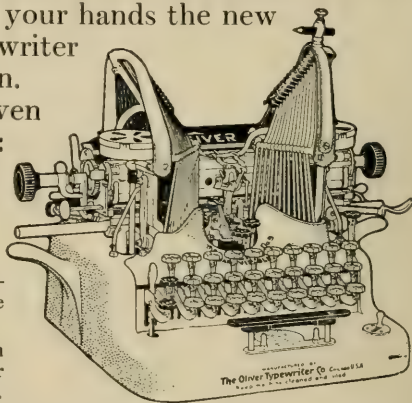
A few dollars, plus your promise to pay the balance at the rate of 17 cents a day, places in your hands the new "Printype" model Oliver Typewriter No. 5, our very finest production.

The best advice that can be given to the young man or woman is:

Get an Oliver Typewriter!

This offer places at your command a machine that turns time, energy, and enterprise into the pure gold of success.

Thousands of ambitious graduates, with the aid of Oliver Typewriters, have won their way to better pay and broader opportunity. This is the age of mechanical writing. The great world of modern business revolves around the typewriter. Typewriter operators are in demand everywhere. Our employment Bureaus in all the important cities are swamped with calls for competent Oliver operators.



Printype — OLIVER Typewriter

The Standard Visible Writer

Easy to Pay--17 Cents a Day

You can make the machine meet the payments. You doubtless spend more than this amount every day for trifles you do not need.

Thousands have paid for Oliver Typewriters on this plan without the slightest effort. Are you going to let a matter of pennies stand between you and this money-making machine?

Against *your* risk of a few dollars *we* risk a \$100 typewriter—the same machine that is used by the greatest firms and corporations throughout the world.

Shall we send you full details of the Easy Purchase Plan?

Catalog mailed on request. Address

The Oliver Typewriter Co., 116 Prospect Ave., Cleveland, O.

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Cleanings in Bee Culture



VOL. XLI. DEC. 1, 1913, NO. 23.

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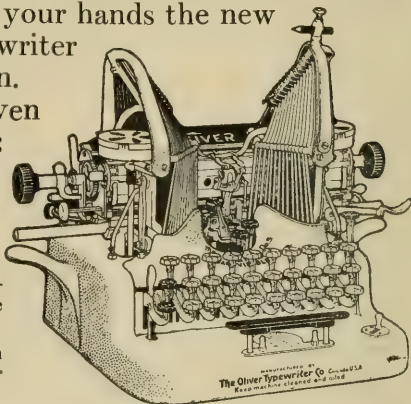
A few dollars, plus your promise to pay the balance at the rate of 17 cents a day, places in your hands the new "Printype" model Oliver Typewriter No. 5, our very finest production.

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This offer places at your command a machine that turns time, energy, and enterprise into the pure gold of *success*.

Thousands of ambitious graduates, with the aid of Oliver Typewriters, have won their way to better pay and broader opportunity. This is the age of mechanical writing. The great world of modern business revolves around the typewriter. Typewriter operators are in demand everywhere. Our employment Bureaus in all the important cities are swamped with calls for competent Oliver operators.



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This is the title of a newly revised book by E. R. Root, going into full details on

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How to Winter Bees Outdoors

It will save many times its cost in one winter. . Price 10c.

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That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think!

The best realms for good seeing are in nature.

The Guide to Nature

tells you how. . It teaches people to see the wonders and beauties of nature.

\$1.00 per year. 10c a single copy.

Edward F. Bigelow, Editor,

The Agassiz Association, Inc.

ARCADIA:

Sound Beach, Connecticut

"Buying Cheap Goods to Save Money is Like Stopping the Clock to Save Time" Send for Annual Catalog which will tell you who is your nearest Distributor.
It Pays to Buy **LEWIS BEEWARE**—Always the Same—Always Standard G. B. Lewis Company, Watertown, Wis.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION,
DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; comb and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and en-

tirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb, 16 to 17; white extracted, 10 to 11. Beeswax, 30. There is an active demand for white comb honey.

Boston, Nov. 17.

BLAKE-LEE CO.

INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cts. in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cts. in cash or trade.

Indianapolis, Nov. 17.

WALTER S. POWDER.

CINCINNATI.—The demand for honey is good. We sell fine table honey in 60-lb. cans from 8 to 10 cts., according to the quality and quantity; amber honey in barrels, from 5½ to 8. Comb honey, for the very fanciest we are getting from \$3.75 to \$4.00 a case. For choice bright yellow beeswax we are paying 30 cts. per lb. delivered here.

Cincinnati, Nov. 19. THE FRED W. MUTH CO.

CHICAGO.—Sales in the aggregate have been fair during the past month, but the supply is quite heavy and prices are weak. It is difficult to obtain more than 15 to 16 for the A No. 1 to fancy grades, and lower grades are more or less neglected, prices ranging from 1 to 5 cts. per lb. less according to kind, condition, and color. Consignments have not sold readily, owing to these conditions. Extracted is also freely offered with prices of the best grades of white ranging from 8 to 9, and ambers from 7 to 8, with the undesirable flavors difficult to market. Beeswax is steady, and sells upon arrival at from 30 to 32, according to color and cleanliness.

Chicago, Nov. 18.

R. A. BURNETT & CO.

Honey reports continued on page 5.

**30 DISTRIBUTING
HOUSES**

FOR LEWIS BEEWARE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

Early-order discount this month is 4 per cent.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT

Editor

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents at the prices shown:

PARIS, FRANCE. E. Bondonneau, 120 Avenue Emile Zola.

Per year, postpaid, 8 francs.

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DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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IDAHO FALLS.—Comb honey is sold out. We quote fancy white extracted in 60-lb. square tins at 7.

IDAHO HONEY-PRODUCERS' ASSOCIATION,
F. C. BOWMAN, Sec.

Idaho Falls, Ida., Nov. 17.

KANSAS CITY.—Receipts of comb honey are large; demand fair. Receipts of extracted are not large; demand is good. We quote No. 1 white comb, 24 sections per case, \$2.75; No. 2 ditto, \$2.50. There is a limited demand for light amber at the price of white. White extracted, per pound, 8 to 8½; amber ditto, 7 to 8; No. 1 beeswax, 30; No. 2, 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Nov. 10.

BUFFALO.—The demand for honey has improved somewhat; not nearly as good as it ought to be. This is due to the fact that there are so many people buying direct from the country. No. 1 to fancy white comb honey, 16 to 17; No. 2 ditto, 14 to 15; buckwheat ditto, 13 to 14; white extracted, 8½ to 9; dark extracted, 6½ to 7½; beeswax, 28 to 30. Receipts of comb not heavy.

Buffalo, N. Y., Nov. 18. W. C. TOWNSEND.

ZANESVILLE.—The present demand for honey is at least normal, and the market firm. For fancy and No. 1 white comb, prices run 17 to 18 in a jobbing way, with a little shading on western honey. There is not much sale on off grades here. Best quality white extracted brings 9 to 11, according to quantity. Producers are paid for beeswax 30 cash, 32 in exchange for honey or supplies.

Zanesville, Nov. 21. E. W. PEIRCE.

DENVER.—Our local market is well supplied with honey, and our jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice, \$2.57; No. 2, \$2.43; extracted white, 8 to 9 cts.; light amber, 7 to 7½. We are in the market for beeswax, and pay 30 cts. per lb. in cash, and 32 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, Nov. 20. FRANK RAUCHFUSS, Mgr.

KANSAS CITY.—Receipts of comb honey are large; demand fair. Receipts of extracted honey are not large; demand good. We quote No. 1 white comb, 24-section case, \$2.75; No. 2 ditto, \$2.50. There is a limited demand for light-amber at the same price as white. White extracted, per lb., brings 8 to 8½; amber ditto, 7 to 8; No. 1 beeswax, per lb. 30; No. 2, 25.

C. C. CLEMONS PRODUCE CO.

Kansas City, Nov. 10.

SCHENECTADY.—The advice given honey producers to dispose of their crop early, while demand was brisk, by the editor of GLEANINGS, was sound. The market is now dull, and those who have held for higher prices, or delayed getting their honey in condition to sell, are up against a slow demand, excepting fancy white, which is scarce. We quote No. 1 white clover at 15 to 16; mixed grades, 12 to 13; buckwheat, 12 to 13; extracted, light, 9 to 9½; dark, 7½ to 8.

CHARLES MACCULLOCH.

Schenectady, N. Y., Nov. 19.

NEW YORK.—The market condition of comb honey remains the same, and we quote fancy white at 16; No. 1, 14 to 15; No. 2, 13; mixed and buckwheat, 10 to 11, according to quality. On account of the somewhat short crop in the Eastern States, a few cars of western comb honey have been sent into our market; and this, in connection with the nearby crop, is sufficient supply to meet demands. Extracted honey remains about the same. There is a fair demand for white clover, which is selling at from 8½ to 9; amber to light, 7½ to 8; buckwheat, 7 to 7½; southern honey, in barrels, is selling at from 60 to 75 cts. per gallon, according to quality, with plenty of supplies. Beeswax is steady at from 31 to 32.

New York, Nov. 19. HILDRETH & SEGELKEN.

IT matters not the least where you live, you can conveniently deposit your funds in this bank by the use of our Banking-by-mail plan. . . Forward deposits in any sums of \$1.00 or more by Money Order, Check, Draft, or Registered Letter. . . Our depositors receive unquestioned safety and 4 per cent interest. . .



The SAVINGS DEPOSIT BANK COMPANY

Medina, Ohio

A. T. SPITZER, Pres.

E. R. ROOT, Vice-pres.

E. B. SPITZER, Cashier

INCREASE Your SALES

... By a Liberal Distribution of Our Booklet ...

THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back-cover page affords space for a display advertisement. As this booklet contains no advertising whatever, it can be employed with telling effect. Better order your supply early. Sample and prices in quantities on application. Fifty-eight pages; one hundred and twenty-two valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

Add-ess the Publishers

THE A. I. ROOT COMPANY, MEDINA, OHIO

ST. LOUIS.—The demand for comb honey is very good, especially for fancy white stock, and our market is well supplied in almost every grade. We are quoting to-day, in a jobbing way, fancy white comb honey at 15 cts. per lb., No. 1 at 14; light amber at 11 to 12; dark amber at 9 to 10. By the case, fancy white comb honey, \$3.00 to \$3.25; No. 1, \$2.50 to \$2.75; light amber, \$2.25 to \$2.40; dark amber, \$1.75 to \$2.00. Light-amber extracted honey, in barrels and half-barrels, 6½ to 6¾; in five-gallon cans, at 7½ cts; dark honey according to quality. Beeswax is in good demand at 32 for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Nov. 20.

GET TOP NOTCH PRICES FOR YOUR HONEY BY USING LEWIS SECTIONS AND SHIPPING CASES

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

A. L. BOYDEN, Advertising Manager.

Established 1873.

CIRCULATION 35,000.

Issued semi-monthly.

ADVERTISING RATES

Twenty-five cents per agate line, flat. Fourteen lines to the inch.

SPACE RATES. To be used in one issue: Fourth-page, \$12.50; half-page, \$25.00; page, \$50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

Outside cover page, double price.

Reading notices, 50 per cent additional.

Cash-in-advance discount, 5 per cent.

Cash discount if paid in ten days, 2 per cent.

Bills payable monthly.

No medical or objectionable advertising accepted.

Column width, 25 $\frac{3}{8}$ inches.

Column length, 8 inches.

Columns to page, 2 (regular magazine page)

Forms close 10th and 25th of each month.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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**An Opportunity to Make an Independent
Living from a small cultivated area in
“The Land of Manatee”
On the Gulf Coast of Southern Florida**

All the early vegetables, marketed at highest prices, are successfully grown—3 and 4 different crops per annum. A home in a delightful year-round climate. A young man paid \$125 for an acre of land this year, and spent another \$125 in clearing and cultivating it in tomatoes. The production was 550 baskets, which were sold at \$2.50 per basket; total gross production from a single crop on an acre of ground, \$1375. The same advantages and opportunities are open to you. Let us tell you in detail of the possibilities in this favored section. Ask for beautiful illustrated book, “Fruit and Vegetable Growing in Manatee County.”

J. A. PRIDE
General Industrial Agent
SEABOARD AIR LINE RAILWAY
Suite No. 376, Norfolk, Va.

The BEEKEEPERS’ REVIEW

would like very much to enroll a goodly number of new subscribers for the year 1914. Listen! Besides the 3000-colony series managed from one office, we will begin with the January number of the REVIEW a series of articles by a beekeeper “gray with experience” that we will call the Farmers’ Series; or, How to Produce Comb Honey with Two Visits a Year. The editor of the REVIEW has looked into this system quite thoroughly, and believes that, with this method that will be described in the REVIEW during 1914, the busy man or farmer can harvest much more comb honey per colony, with about a fourth the work that is required with the ordinary system now in vogue. We are printing 400 extra sets of the REVIEW for the last half of 1913; and as long as they last they will be included free to all new paid-in-advance subscribers for 1914. All progressive beekeepers should subscribe for two or three good bee journals. We are making a special low price on the REVIEW when clubbed with other bee journals.

To take advantage of this low price, all remittances should be addressed—

Here is a	{ GLEANINGS, one year, \$1.00 }	} Both, one year, for \$1.50.
good one:	{ The REVIEW, one year, \$1.00 }	
Here	{ GLEANINGS, one year, \$1.00 }	} All Three for \$2.00.
is an-	{ AMER. BEE JOURNAL, 1 yr., \$1.00 }	
other:	{ The REVIEW, one year, \$1.00 }	

THE BEEKEEPERS’ REVIEW, NORTHSTAR, MICHIGAN

Containers for Comb and Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. Special attention is directed to our assortment of Friction-top Pails and to tin cans of ½, 1, and 5 gallon capacity. Get full information, prices, and samples.

The A. I. Root Company, - - - - - Medina, Ohio.

Christmas Gifts for the whole Family

A few timely suggestions which will help
to solve the perplexing question of
Appropriate Christmas Remembrances.

- FOR FATHER:** A year's subscription to *Gleanings in Bee Culture* and a cloth-bound copy of the 1913 edition of *The A B C and X Y Z of Bee Culture*. \$2.50
Advanced Bee Culture, by the late W. Z. Hutchinson, 1.00
Advanced Bee Culture and Gleanings one year, 1.50
The Dollar Hen (a practical book on poultry culture) with *Gleanings in Bee Culture* one year 1.50
Root Standard Smoker (tin) with *Gleanings in Bee Culture* one year, 1.75
Langstroth on the Honeybee 1.25
Langstroth on the Honeybee, with *Gleanings in Bee Culture*, one year 1.75
FOR MOTHER: A set of **Quality Knives**. 1.00
 See page 19, Nov. 1 GLEANINGS. This set consists of three knives—one SLICER, one BUTCHER, and one PARING-KNIFE. Blades of best tempered crucible steel, and finished with the highest polish it is possible to put on metal. Good handles. A first-class set of knives.
One Set of Quality Knives and a year's subscription to *Gleanings in Bee Culture*, 1.50
FOR DAUGHTER: A copy of **How to Keep Bees** 1.00
 By Anna Botsford Comstock. A charmingly written book which introduces the reader in a most interesting way to the bee, giving in clear language all of the details of beekeeping so essential to success of an amateur.
How to Keep Bees and a year's subscription to *Gleanings in Bee Culture*, 1.50
A Set of Three Pairs of Scissors, 1.00
 Of different sizes, having elaborately designed gold-plated handles, nickel-plated polished blades. See GLEANINGS, Oct. 1, p. 18.
One Set of Scissors, with a year's subscription to *Gleanings in Bee Culture*, 1.50
FOR SISTER: **Standard Domestic Science Cook Book** Contains 33 departments, 140 illustrations; excellent cook book, and a year's subscription to *Gleanings*, 2.50
FOR SON OR BROTHER: A copy of Dr. C. C. Miller's **Fifty Years Among the Bees**, 1.00
Fifty Years Among the Bees, and *Gleanings in Bee Culture* one year, 1.50

Subscription to GLEANINGS may be to one address and the rest of the combination to another, if so desired. . . Foreign postage on the Combination Offers, 60c extra; Canadian postage, 30c extra.

The A. I. Root Co., Medina, O.

A WONDERFUL CHRISTMAS OFFER

GLEANINGS IN BEE CULTURE, 1 year } All for
THE FARM JOURNAL for four years } \$1.50
CHRISTMAS PACKAGE of 253 pieces }

The collection of cards, tags, Christmas labels, books, and letters included in the CHRISTMAS PACKAGE represents a very high value. We are able to offer the package to our readers through a special arrangement by which the tags, labels, etc., are purchased in quantities from manufacturers in Germany and in this country, at wholesale rate, thus making possible the very low rate at which the Farm Journal, Christmas Package, and Gleanings in Bee Culture are offered in combination.

We can not furnish the Christmas package except in combination with the Farm Journal.

What the Christmas Package Contains.

- 50 Santa Claus Stickers.
- 50 Autumn Leaf Stickers.
- 50 Assorted Stickers, Poinsettias, Holly, etc.
- 40 Assorted Gummed Stamps, perforated.
- 10 Large Gummed Labels, "Please do not open until Christmas."
- 12 Large Round Pastors, "A Merry Christmas."
- 1 1914 Triplicate Calendar.
- 4 Double Holiday Booklets, each in an envelope.
- 1 Large Folding Christmas Letter, enclosed in a fine white envelope, ready to mail.
- 6 Holiday Post Cards, Christmas and New Year's.
- 12 Enclosure Cards and Tags, all different designs.
- 12 Larger Enclosure Tags and Cards.
- 5 Beautiful Enclosure Cards, largest size.
- 253 Pieces in all.

Send your order early before the supply is exhausted.

The A. I. Root Co., Medina, Ohio

"If goods are wanted quick, send to Pouder."

BEE SUPPLIES

This advertising business is an interesting subject, and I have given it hard study for just twenty-five years. An expert advertising man of this city, Mr. Carl D. Spencer, has this to say in one of his announcements: "In September I canvassed over two hundred homes and asked questions. I learned this: That practically everybody reads advertisements; that nearly everybody doubts the truth of advertisements generally; that most people do not separate the true from the false, but discount what is said in all or nearly all of them; that almost every one has been tricked into spending money through false or misleading advertisements. They blame the business man and not the magazines because false advertising is permitted, and every one desires a means by which she or he may recognize a truthful advertisement."

The above interested me greatly, and I have been trying for a solution as to how to have my advertising identified as the genuine article. I have never overrated my class of goods. In bee supplies I simply say that the goods which I handle are the Root make, and that speaks volumes. I receive hundreds of testimonials from those who have dealt here, and these same friends are recommending my goods to their neighbors. In shipping large orders of bee supplies, there is a declining scale of prices on quantity lots, and I save this for my patrons, often unexpectedly to them, but gratefully received as a rebate. Frequently neighbors club together and secure their supplies in one shipment, thus creating a saving in the aggregate cost as well as in transportation charges. I should like to place my catalog of supplies in your hands, which shows the new schedule of prices, and gives list of discounts offered for early orders. I also include with each catalog a letter which I should like to have you read.

Just now I am advertising finest extracted honey by parcel post. I am mailing tight-seal cans containing four quarts, two quarts, and one quart, and also paper honey-jars filled with granulated honey. With these paper honey-jars one can peel off the waxed paper and leave a beautiful cone of white granulated honey to serve on the table, and I assure you that this has never been equaled in any confection. This is strong language; but if you receive a sample you will admit that my advertisement is not overdrawn. I have mailed these goods to Chicago, Cincinnati, Louisville, and to many small towns, without a failure thus far. Perhaps some of you would like one of these packages mailed to some of your friends as a Christmas souvenir. Can you think of a nicer, sweeter token? If interested let me mail you my descriptive circular with price list. I will also include price list of honey to be shipped in larger quantities.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.



Established 1885

We carry an up-to-date
line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey:

ALFALFA,	PALMETTO,
SWEET CLOVER,	ORANGE,
WHITE CLOVER,	LIGHT AMBER,
ALSIKE CLOVER,	DARK AMBER,
BASSWOOD,	BUCKWHEAT.

We have some very fine lots of Ohio, Michigan, and Wisconsin WHITE-CLOVER COMB HONEY. For those who have not secured a good crop, and are wanting some fine lots for their trade, we can furnish them any desired quantity.

Write for our special prices.

The A. I. Root Company
Medina, Ohio

WANTED!

NEW CROP HONEY
New York and Pennsylvania
COMB
ESPECIALLY

Write us, stating quantity, quality, style of sections, when ready for shipment, etc. Will buy or handle on commission.

Hildreth & Segelken, New York
265-7 Greenwich St. 82-86 Murray St.

FRENCH'S

THE ORIGINAL POULTRY MUSTARD IN AMERICA

Write to us for information.
Booklet and circulars free.

THE R. T. FRENCH COMPANY, Mustard-Makers
ROCHESTER, N. Y. Department D.

NO MORE RABBITS If you want a cheap and safe method for keeping RABBITS and BORERS out of your orchard, paint your trees with "SULFOCID" the new concentrated sulphur compound. Easy to prepare and apply. One application lasts one year. "SULFOCID" solves the rabbit problem. Write today for booklet, "SULFOCID, Sure protection from rabbits and borers." Address B.G. Pratt Co., 50 Church St., N.Y.



"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

Root's Shipping Cases for Honey

We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. NEW 60-POUND CANS, two in a case, a specialty. FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.

"Griggs is always on the job."

New Goods Arriving!

We are getting our stock for next season, and should be glad to have your order for any supplies you are to use next year. A folder, with new prices, will be mailed you on request. . . .

The A. I. Root Co., Syracuse, N. Y.

Send for Our Prices on

BEESWAX

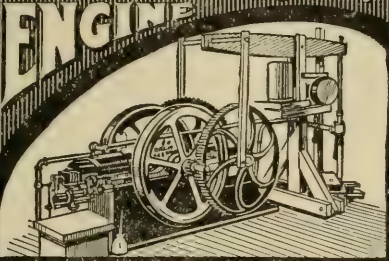
We are paying higher prices than ever before at this season. WHY? Because of the tremendous demand for

Dadant's Foundation

Write at once. . . We will quote prices F. O. B. here or F. O. B. your station.

DADANT & SONS
HAMILTON, ILLINOIS.

**Read my Book-
See my Prices
Before you buy any
ENGINE**



This WITTE Engine, after 26 years, still giving good service to S. A. Stone, Chillicothe, Mo.

WITTE ENGINES

Kerosene, Gasoline & Gas

You can now own an Engine for less than you can do without one.

Look at These Prices!

2 H.P. \$39.45; 4 H.P. \$75.50; 6 H.P. \$99.35; 8 H.P. \$149.90; 11 H.P. \$218.90; 20 H.P. \$389.50

Other Sizes, up to 40 H.P., Proportionally Low.

Stationary, Portable, Skidded and Sawrig styles. Standard for 27 years. Why pay two prices for a good engine or take chances on a poor, or doubtful engine for any kind of a price, when the WITTE is so low-priced and saves you all the risk.

60 DAYS' TRIAL; 5-YEAR GUARANTY

Easy terms of payment, at regular prices. You are sure of a square deal, when you buy of me.

Book Free Get my Book before you arrange to try any engine. Costs you nothing to be sure of your selection, even if you don't pick a WITTE. Learn the inside of the engine business and how to judge engines for yourself.

Send me just your address so I can send you my New Book with my Latest and Best Offer by return mail.

Ed. H. Witte Engine Works

1935 Oakland Ave., Kansas City, Mo.



Why Pay the Dealer to Select Your Range?



YOU know what you want better than he does.

Don't depend on his taste. Get the Kalamazoo book of 400 stoves and make your own choice.

Pay Cash or Take Your Time

-30 Days' FREE Trial-Save \$5 to \$40!

In 250,000 delighted homes Kalamazoo ranges are praised 3 times a day. They make cooking a pleasure and results a pride.

Write for Catalog No. 416

KALAMAZOO STOVE CO. Kalamazoo, Mich.

We make a full line of Stoves, Ranges, Gas Stoves and Furnaces.

We have three catalogues—please ask for the one you want.

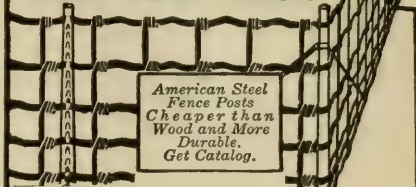
"A Kalamazoo Direct to You" And Gas Stoves Too



GIVEN TO EVERY BOY AND GIRL. We give a fine Eureka Camera and complete outfit, plates, chemicals, etc., with full instructions. Just send your name and address, we send you 24 papers Gold Eye Needles. Sell 2 papers for 10c., giving a Thimble free. When sold send us the \$1.20 and the Camera and complete outfit is yours. Address **GLOBE CO., Dept. 725. Greenville, Pa.**

AMERICAN ORIGINAL AND GENUINE FENCE

**More Big Fence News!
More Farm Profits!**



*American Steel Fence Posts
Cheaper than Wood and More Durable.
Get Catalog.*

Better and better! Best news is, heavier galvanizing. Positively does not chip nor crack. More years of fence life. *No extra cost to you. More farm profits.*

More good news is, perfectly uniform fabric. Improved automatic machinery, the reason. *No extra cost to you.* Larger business enables us to keep down prices.

Your choice of Bessemer or Open Hearth Steel. You get equally big value in either case. Get catalog.

Dealers everywhere. See them.

**FRANK BAACKES, Vice-Pres. and Gen. Sales Agent
American Steel & Wire Company**
Chicago, New York, Cleveland, Pittsburgh, Denver;
U. S. Steel Products Co., San Francisco

35609

Quaker City Mills

Grind Feed the Fastest and Finest

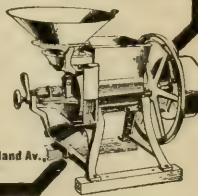
Any of our 23 styles—hand power to 20 h. p.—shipped on 10 days' free trial. We pay the freight. Prove to your own satisfaction that Quaker City Mills will satisfactorily grind anything—grind grain, separate or mixed, ear or shelled corn, husks, and from the coarsest to the finest meal of any grade. And our prices are the very lowest.

Free Book giving useful information and full particulars for the asking. Also write for book giving remarkable prices on labor-saving farm machinery.

The A. W. Straub Co.

Dept. R Dept. G

3748-50 Filbert St., 3703-11 S. Ashland Ave.,
Philadelphia, Pa. Chicago, Ill.



FARM FENCE

41 INCHES HIGH

100 other styles of Farm, Poultry and Lawn Fencing direct from factory at save-the-dealer's-profit-prices. Our large catalog is free.

21 CENTS A ROD

KITSELMAN BROS. Box 21 Muncie, Ind

BROWN Direct from factory, freight prepaid. Over 160 styles for every purpose, all Double galvanized, 13c per rod up. New Bargain Catalog and Sample to test. ALL FREE. Mail postal NOW to THE BROWN FENCE & WIRE CO. Dept. 51 Cleveland, Ohio





NEW BINGHAM BEE SMOKER

Patented

The New Bingham Bee Smoker

leads the procession in improvements, such as metal legs, turned edges, metal binding on bellows, new spring on the valve of the bellows; self-cleaning creosote-burning cover sets on inside of fire-pot. . . . Try one this season.

Smoke Engine, 4-inch stove, \$1.25
Doctor, 3½-inch stove, .85
Conqueror, 3-inch stove, .75
Little Wonder, 2½-in. stove, .50

Two larger sizes with metal legs and hinged cover, in copper, 50c extra.

Parcel-post shipping weight, 2lbs. each.
For sale at your dealers or direct.

A. G. WOODMAN CO.
GRAND RAPIDS, MICH

The "BEST" LIGHT

Safe, powerful, brilliant, steady and cheap—five reasons why you should replace expensive electricity, unpleasant oil, and wasteful gas with the most efficient of all lights—the "Best" light. Agents wanted everywhere. Write for catalog today showing over 200 different styles.

THE BEST LIGHT CO.
306 East 5th St., Canton, O.

Large Eggs

now and all winter, too, if you feed your hens The Humphrey Way—fresh bone prepared in a

HUMPHREY BONE CUTTER
with its Always-Open Hopper. If you have 10 hens or more, write for our offer and a copy of our profitable book, "The Golden Egg."

HUMPHREY, MINE ST. FACTORY, JOLIET, ILL.

WHITEWASHING

and disinfecting with the new

"Kant-Klog" Sprayer

gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, etc. Agents Wanted. Booklet free.

Rochester Spray Pump Co.,
207 Broadway, Rochester, N. Y.

THE RANGE THAT BAKES

The Heat-retaining **STONE OVEN BOTTOM** Dustless Ash Sifter—"No Odor" Hood are exclusive "IMPERIAL" features. Guarantee better cooking and baking besides saving ½ labor and ½ fuel.

You can have an absolutely **Free Trial** in Your Home for 30 Days. No obligation. You have no dealer's profit or freight charges to pay. Credit if you want it.

Write today for special prices and **FREE Book** on Ranges and Heaters.

The Imperial Steel Range Co.
440 Detroit Ave., Cleveland, O.

LIKE MOTHER BAKED

WRITE FOR MY PRICE

On 8-time World's Champion

Belle City

Winner in 20,000 hatch contests. Record of success never equalled. I'll send you Hatching facts, figures and proof that will interest you. Show you how to get prize winning hatches at lowest cost. Write me a postal now.

Jim Rohan, Pres.
Belle City Incubator Co., Box 69, Racine, Wis.

RIDER AGENTS WANTED

IN EACH TOWN and district, to ride and exhibit a sample 1914 Model "Ranger" bicycle furnished by us. Our agents everywhere are making money fast. Write at once for full particulars and special offer.

NO MONEY REQUIRED until you receive and approve of your bicycle. We ship anywhere in the U.S. without a cent deposit in advance, prepay freight, and allow **10 DAYS' FREE TRIAL**, during which time you may ride the bicycle and put it to any test you wish. If you are then not perfectly satisfied or don't wish to keep the bicycle you may ship it back to us at our expense and you will not be out one cent.

LOW FACTORY PRICES We furnish the highest grade bicycle it is possible to make at one small profit above actual factory cost. You save \$10 to \$25 middlemen's profits by buying direct of us and have the manufacturer's guarantee behind your bicycle. **DO NOT BUY** a bicycle or a pair of tires from anyone at any price until you receive our catalogues and learn our unheard of factory prices and remarkable special offer.

YOU WILL BE ASTONISHED when you receive our study our superb models at the wonderful low prices we can make you. We sell the highest grade bicycles at lower prices than any other factory. We are satisfied with \$1 profit above factory cost. **Bicycle Dealers**, you can sell our bicycles under your own name plate at double our prices. Orders filled the day received.

SECOND HAND BICYCLES—A limited number taken in trade by our Chicago retail stores will be closed out at once, at \$3 to \$8 each. Descriptive bargain list sent free.

TIRES, COASTER-BRAKE rear wheels, inner tubes, lamps, cyclometers, parts, repairs and parts for all bicycles at half usual prices. **DO NOT WAIT**—but write today for our **Large Catalogue** beautifully illustrated and containing a great fund of interesting matter and useful information. It only costs a postal to get everything. Address

MEAD CYCLE CO., Dept. F113 CHICAGO, ILL.

TERMS TO SUIT
Write for Catalog A14



BEST FOR WASHING MACHINE

FREE TRIAL FOR 30 DAYS

"The Masterpiece of the Largest Manufacturers of Two-Cycle Engines in the World"

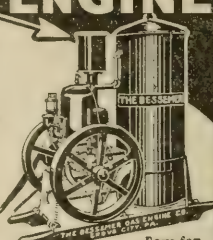
It isn't the first cost of an engine—it's the running cost that counts

The Wonderful BESSEMER Gaso-Kero Engine

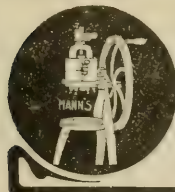
Economy of fuel and the sureness with which they run have made Bessemer "Gaso-Keros" the greatest little hustlers in the world. No carburetor troubles, because there is no carburetor—the famous Bessemer Universal Fuel Feeder feeds automatically for a light or heavy load, thus preventing any waste of fuel. Runs on kerosene, distillate, etc.—non-cranks—only three moving parts—change speeds, etc.—in short, the perfect Kerosene Engine. 2 to 350 H.P. 30 days free trial. Immediate shipment.

BESSEMER GAS ENGINE CO.
Largest Makers of Two-Cycle Engines in the World
132 LINCOLN AVE., GROVE CITY, PA.

NON-CRANKING KEROSENE ENGINE



Pays for itself in fuel saved



Make Your Hens Lay

You can double your egg yield by feeding fresh-cut, raw bone. It contains over four times as much egg-making material as grain and takes the place of bugs and worms in fowls' diet. That's why it gives more eggs—greater fertility, stronger chicks, larger fowls.

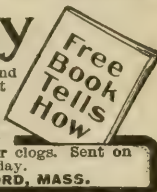
MANN'S LATEST MODEL BONE CUTTER

Cuts easily and rapidly all large and small bones with adhering meat and gristle. Automatically adapts to your strength. Never clogs. Send on 10 Days' Free Trial. No money down. Send for our free books today.

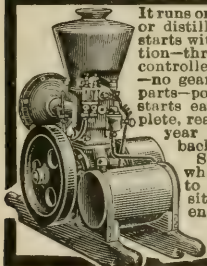
F. W. MANN CO.

Box 37

MILFORD, MASS.



20 Reasons Why You Should Investigate the SANDOW Kerosene Stationary ENGINE



It runs on kerosene (coal oil), gasoline, alcohol or distillate without change of equipment—starts without cranking—runs in either direction—throttle governed—hopper cooled—speed controlled while running—no cams—no valves—no gears—no sprockets—only three moving parts—portable—light weight—great power—starts easily at 40 degrees below zero—complete, ready to run—children operate them—5-year ironclad guarantee—15-day money-back trial. Sizes 2 to 20 horsepower.

Send a postal today for free catalog, which shows how Sandow will be useful to you. Our special advertising proposition saves you one-half cost of first engine sold in your county. (184)

Detroit Motor Car Supply Co.
72 Canton Ave., Detroit, Mich.

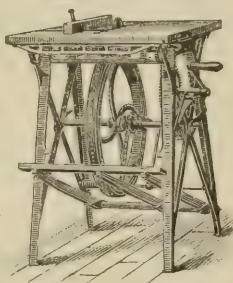
BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.,
545 Ruby St.,
ROCKFORD, ILLINOIS.



RAW FURS AND GINSENG



No Express on lots over \$10. . No commission. You get value received when you ship to . . .

GEORGE E. KRAMER
Valencia, Pa.



40 ACRES solid to Su-berb. Pro-gressive, American and other best everbearers. Get acquainted offer for testing. Send us 10c for mailing expense, and we will send you 6 high quality everbearing plants (worth \$1) and guarantee them to fruit all summer and fall, or money refunded. Catalogue with history **FREE** if you write today.

THE GARDNER NURSERY CO.
Box 130 OSAGE, IOWA

FARM FENCE FROM FACTORY TO FARM



26-inch Hog Fence, . . . 14c.
41-inch Farm Fence, . . . 21c.
48-inch Poultry Fence, . . . 22½c.
80-rod spool Barb Wire, \$1.55

Many styles and heights. Our large Free Catalog contains fence information you should have.
COILED SPRING FENCE CO Box 101 Winchester, Ind.

STUDY BEE CULTURE BY MAIL

There is money in Bees if you know how. Make a good living from Bees or keep down the high cost of living. Always a good demand for men who know Bee Culture. Just the opportunity you have been wanting—learn at home. You can make your spare time count and finish this course this winter by beginning now. This excellent course prepared by **E. R. Root**, the foremost exponent of Scientific Beekeeping. Also splendid correspondence courses in General Farming, Truck—North or South, Poultry, Fruit, Flowers, Greenhouse, Soils, Dairying, Farm Management, Farm Book-keeping, Farm Veterinary, Writing for the Farm Press, Mushroom, Ginseng, etc. Original and largest school devoted exclusively to teaching farming by mail. Write to-day for **Free Booklet "How to Make the Farm Pay More,"** also temporary low rate, easy terms, full particulars. (Which course interests you?) (No agents.) Free sample lesson from General Farming Course on request.

American Farmers School, 440 Laird Building, Minneapolis, Minn.

HONEY Bought Sold...

Central Ohio Honey Market

Finest quality WHITE-CLOVER honey a specialty. Producers who have not yet sold their crop should write. Those who have disposed of their crop and are in need of more for their trade, I shall be glad to supply at lowest prices consistent with highest quality and a fair margin of profit.

The correspondence of wholesale and retail dealers is especially solicited, as I am in position to furnish a grade of comb and extracted honey that will suit the most exacting trade. If interested, write for quotations and full description of the line.

Bee Supplies

Now is the best time to place your order for supplies for use next season. The prospect was never brighter, and there is every thing to gain and nothing to lose by ordering before the spring rush is on. Ask for revised price list and early-order discounts.

Root Quality and Peirce Service
from Ohio's Supply Center

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

PAINT WITHOUT OIL

**Remarkable Discovery that
Cuts Down the Cost of Paint
Seventy-five Per Cent.**

**A Free Trial Package is Mailed to Every
One Who Writes.**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 8 North St., Adams, N. Y., and he will send you a free trial package, also color-card and full information showing you how you can save a good many dollars. Write to-day.

How to Keep Bees

BY ANNA BOTSFORD COMSTOCK

This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in getting this book. It is charmingly written and easily understood. Price \$1.10 postpaid.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

The Successful Apiarist of Tomorrow

will be the man who runs

OUT-APIARIES BY THE MOST APPROVED PLANS

Learn How by Reading

Management of Out-APIaries

A 72-page book by the well-known writer
G. M. DOOLITTLE
of New York

The best work on running a series of yards that we are able to offer. Twelve chapters, seventy-two pages. Price 50 cts. per copy postpaid. Get a copy, now of the publishers.

The A. I. Root Company
Medina, Ohio

Boston New England

Is the Shipping Center of
Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street - BOSTON, MASS.

PATENTS

25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLachlen Building, Corner
Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts

Patent Counsel of
The A. I. Root Co.

BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street

IF YOU USE

bee supplies you should have our catalog.
We sell the best No. 25 jar made.
Heavy cartons that protect honey.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Aplarios, Glen Cove, L. I.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

See our special sale of honey on advertising page 11 of this issue. THE A. I. ROOT CO., Medina, Ohio.

FOR SALE.—White-clover and basswood extracted honey. D. H. WELCH, Racine, Wis.

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Tupelo honey, barrels and cans. Fine and white. Sample 10 cts. I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—New extracted alfalfa honey in 60-lb. cans at 8½ cts. per pound. C. C. CLEMONS PRODUCE CO., Kansas City, Mo.

FOR SALE.—Finest quality white extracted and comb honey. Write for prices. STEARNS & FOX, Fruitdale, S. D.

FOR SALE.—Finest quality clover and buckwheat honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Extra quality buckwheat honey in 60-lb. cans, two cans in a case, at 8 cts. Sample on request. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—White-clover honey in 60-lb. cans. Ripened on the hives. There is nothing finer in every respect. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—A limited amount of our "Elite" brand of white-clover extracted honey. Sample free. E. D. TOWNSEND & SONS, Northstar, Mich.

FOR SALE.—Fine quality sweet clover and alfalfa extracted honey in 60-lb. cans, \$9.00 per case of two 60-lb. cans. Write for prices on car lot. W. A. CHEEK, Merino, Col.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—2500 lbs. light buckwheat honey in 60-lb. cans, fine flavor. Sample 10 cts., which may be deducted from order. LEONARD MACBETH, Hudson, N. Y.

FOR SALE.—My 1913 crop of extra-fine quality of white clover and raspberry honey, 10 cts. per lb. Send for sample. GEORGE RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

FOR SALE.—No. 1 white-clover comb, \$3.50 per case; No. 2, \$3.00 per case. Fall comb No. 1, \$3.00 per case; No. 2 fall, \$2.50 per case; 24 sections to case, and six cases to carrier.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Buyers of honey will do well by sending for the November number of *The Beekeepers' Review* containing the name and address of 101 National members having honey for sale. It is free for the asking. THE BEEKEEPERS' REVIEW, Northstar, Mich.

Pure Raspberry Honey. Left on the hives until all sealed and ripened; quality fine, thick, and rich. Raspberry honey was a very short crop this year. If you want some, better order soon. Put up in new 60-lb. tin cans; price \$6.00 a can. Sample by mail, 10 cts., which may be applied on order for honey. ELMER HUTCHINSON, Pioneer, Mich.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; ½-lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60-lb. cans, very nice amber honey.

HENRY STEWART, Prophetstown, Ill.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Honey and beeswax. State what you have, and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Extracted honey. State quantity and lowest price. THE ROCKY MOUNTAIN BEE CO., Forsyth, Montana.

WANTED.—To buy dark and amber extracted honey in 60-lb. tins. State price wanted. A. G. WOODMAN CO., Grand Rapids, Mich.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

In 1912 and '13 our bees wintered perfectly in the Eureka concrete case. Write for circular and learn about them. B. T. BOSSERMAN, Williamstown, O.

New crop of extra-fine quality alfalfa seed, \$7.00 per bushel; sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

FOR SALE.—A full line of beekeepers' supplies, also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—200 each 4 x 5 section-holders and fences; about 400 new 4 x 5 sections, and a number of good bait sections cheap.

WM. ROBINSON, Rt. 7, La Fayette, Ind.

FOR SALE.—One check-protector, a device for protecting commercial paper. Will be useful in business houses. Will sell at far below cost. Correspondence solicited.

MRS. W. Z. HUTCHINSON, Flint, Mich.

FOR SALE.—100 single-walled 1½-story ten-frame hives, used two years; all complete except sections and foundation, including new Hoffman frames and super for plain sections. Cost \$2.00 each; price \$1.25. L. F. HOWDEN, Fillmore, N. Y.

Beekeepers! On Jan. 1 there will appear on the market a new double-walled hive, which is different in several respects from any other hive heretofore offered to the public. Write for description, photo, and prices. The catalogs will be out soon, and one will be mailed to all applicants free.

L. F. HOWDEN Mfg. Co., Fillmore, N. Y.

WANTS AND EXCHANGES

WANTED.—To hear from owner who has good farm for sale. Send description and price. NORTH-WESTERN BUSINESS AGENCY, Minneapolis, Minn.

WANTED.—To lease large apiary or work on salary. Have had experience in several States, and can furnish best of references. State salary or terms in first letter. JAS. D. ARVIN, box 237, Millinocket, Me.

WANTED.—Having sold my large apiary in Eastern New York, and wishing a change of climate, would like a position in large apiary on salary or shares.
D. C. STAHLMAN, Knox, N. Y.

WANTED.—To purchase negatives taken in and about the bee-yard. In answering, kindly furnish prints of the same, and price expected. M. H. MACLEOD, 725 So. Euclid Ave., Oak Park, Ill.

REAL ESTATE

FOR SALE.—80 acres of timbered land in a good bee locality. LEWIS FRANCISCO, Mosinee, Wis.

FOR SALE OR TRADE.—A good residence property, modern except heat, with outside sleeping-porch. Good poultry-houses and runs. Delightful climate. For particulars address A. DEARMON, Cheyenne, Wyo

FOR SALE.—Small farm suitable for bees, poultry, and truck; large house, fine shade, fruit. In one of the best buckwheat-honey sections in the State. Near trolley. THOS. ROTHWELL, Chemung, N. Y.

FOR SALE.—My bees and fixtures; no disease; lots of alfalfa. Will lease good five-room house, truck-patches, etc. Plenty of employment when not busy with bees. If interested, write me; but don't write unless you mean business. H. A. BUSHBY, Rydal, Republic Co., Kansas.

Fertile Virginia farms, small and large, on railroad, \$15 an acre up. Easy payments. Write for list. Send names of two friends interested in Virginia and receive our beautiful magazine one year free. F. H. LABAUME, Ag'l Bldg. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

Alfalfa, Corn, and Hog Raising is a money-making combination, rapidly making Southeastern farmers rich. The South is the new "corn belt" and the natural realm of "king alfalfa." Act quick, land prices now extremely low; values rapidly advancing. Farm lists and "Southern Field" sent free. M. V. RICHARDS, Land and Industrial Agent, Southern Railway, Room 27, Washington, D. C.

BEEES AND QUEENS

FOR SALE.—50 to 200 colonies, eight-frame, first-class. E. F. ATWATER, Meridian, Idaho.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALRATH, Antioch, Cal.

Phelps' Goldenes combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Apiary of 100 colonies of bees in good condition; 75 extra hives, together with a complete set of implements, and every thing to work with; in a fine locality. For information write to R. S. SHELTON, New Smyrna, Fla.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.

WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Malvern Hill, Va.

FOR SALE FOR CASH.—700 odd colonies of bees with complete outfit for running them for comb and extracted honey. Also about 4 acres of land 1½ miles from city; bee-house, horses, wagons, and a few supplies off the market Jan. 1. This outfit is located in the heart of the Mesilla Valley under the Elephant Butte project. HOPPER & MCBRIDE, Box 262, Las Cruces, N. M.

POULTRY

Rhode Island Reds. High grade stock for sale. Write me. E. O. WALTZ, Medina, Ohio.

FOR SALE.—Buff turkeys, \$5.00 per pair; \$7.00 per trio. J. L. SANSOM, Rt. 1, Aberdeen, Miss.

Indian Runner breeding-ducks laying now. Utility and exhibition stock (pure white eggs) sent on approval. DERBY TAYLOR, Box G, Lyons, N. Y.

Single-comb White Leghorns.—\$1.00 each; pullets and cockerels, yearlings and cocks; shipped anywhere. As many as desired. Write for catalog. WOODWORTH FARM, Wilton, Conn.

FOR SALE.—Indian Runner ducks. Stock bred from first-prize hen and first-prize drake, Ohio State Fair. Fine birds, and unequaled egg-producers. Guaranteed birds at reasonable prices. L. G. CARY, Trimble, Ohio.

Rhode Island Reds, Plymouth Rocks, White Leghorns, and White Wyandots, cockerels, hens, and pullets. Have your order booked now for eggs and baby-chicks for early delivery. Write for prices. CRYSTAL SPRINGS POULTRY YARDS, Boonville, Mo.

PIGEONS

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$\$\$-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

MISCELLANEOUS

FOR SALE.—Thoroughbred Scotch collie brood bitch, 18 months old, \$10; Mann green-bone cutter, new, hand or power; cost \$32; take \$10 on approval. HENRY CABLE, Reynoldsville, Pa.

FOR SALE AT A BARGAIN.—Model 36, four-cylinder, sixty H. P. seven-passenger "Thomas Flyer." By removing the rear tonneau it can be made into a truck with extraordinary carrying capacity. E. C. GREER, 712 N. M. St., Mt. Vernon, Ohio.

Make money cutting ice with Orton & Lair's Ice-Cutting Machine. Four H. P. gasoline-engine and saws. Patents pending. 2118 cakes cut in 2 hours, 50 minutes, and sold floating for \$31.77. Carload cut in 12 minutes. Write for particulars. Price \$450.00. THE ORTON & LAIR PATENT ICE-CUTTING MACHINE CO., 45 Grand St., Gloversville, N. Y.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Conn.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on common stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

SOUVENIR PHOTO-PRINT OF A. I. ROOT.

It has occurred to us that possibly there may be readers of GLEANINGS in BEE CULTURE who do not happen to have one of these photo-prints of Mr. Root, who would really like one. The picture is a reproduction of one of Mr. Root's latest pictures, and is an excellent likeness. The engraving for the print was done by one of the largest engraving houses in the United States. The print is an exact reproduction of a costly carbon photograph. Each picture bears a fac-simile of Mr. Root's autograph signature. As long as the supply lasts, we shall be pleased to send one of these prints, without charge, to any subscriber who desires one in connection with renewal for one year in advance at regular subscription rate of \$1.00. If the subscription happens to be paid for one or more years in advance, a picture will be sent upon request.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0139, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0153, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, $2\frac{1}{2} \times 6$ extra-thin-super mill, fair. Price \$10.00.

No. 0157, $2\frac{1}{2} \times 6$ thin-super mill, in good condition. Price \$12.00.

No. 0160, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, in good condition. Price \$12.00.

No. 0165, $2\frac{1}{2} \times 6$ hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0167, $2\frac{1}{2} \times 6$ hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0176, $2\frac{1}{2} \times 6$ extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, $2\frac{1}{2} \times 6$ hexagonal, thin-super mill, in fair condition. Price \$10.00.

No. 0183, $2\frac{1}{2} \times 6$ hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0187, 2×10 round-cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0188, 2×10 round-cell medium-brood mill, in good condition. Price \$14.00.

No. 0191, 2×10 round-cell Pelham mill in good condition for this kind of mill. The bases of the cells are not natural shape, but the walls are regular. Price \$7.00. Sample mailed free if interested.

No. 0182, $2\frac{1}{2} \times 12$ round-cell medium-brood mill in very good condition. Price \$20.00.

No. 0186, $2\frac{1}{2} \times 10$ hexagonal cell medium-brood mill in good condition. Price \$20.00.

No. 0206, $2\frac{1}{2} \times 10$ hexagonal cell heavy brood Dunham mill in good condition. Price \$15.00.

No. 0207, $2\frac{1}{2} \times 6$ hexagonal cell thin-super Dunham mill in good condition. Price \$10.00.

No. 0210, 2×10 round-cell medium brood mill in extra-good condition. Price \$16.00.

No. 0211, $2\frac{1}{2} \times 10$ hexagonal cell medium-brood mill; rolls recut, and practically as good as a new machine. Price \$28.00.

No. 0212, $2\frac{1}{2} \times 10$ hexagonal medium-brood mill; rolls recut, and practically as good as a new mill. Price \$28.00.

SPECIAL NOTICES

A. I. ROOT

OUR MAGAZINES AND PERIODICALS OF THE PRESENT DAY, DEVOTED ESPECIALLY TO THE HOME.

A great many times I have been pained to see our home journals undertake to teach something that they know nothing about. May be we are all guilty

more or less; but I have oftentimes remarked that if an editor, when he tries to write up a certain subject, would consult an up-to-date expert, or, better still, get that expert to write it for him, there would be much less blundering in print. One man can not know *every thing*, and therefore some of our great family papers have three or four editors, and perhaps more. But even when they get out of their beat a little they should be sure they are up to date. The water-witching I have recently spoken about illustrates this; the influence of the moon on vegetation, etc.; also predicting the weather for months ahead. Some of our home journals permit articles to go into print that are full of superstition and nonsense, just because they do not consult the Weather Bureau or the experiment stations of their respective States.

Ever since I can remember, I have seen more or less of the *Youth's Companion*, and it has been my pleasure to see it grow; but of late years I have not been able to read it very much; but whenever I do, or whenever I see extracts from it, I am greatly pleased to find it year after year sound and sensible, and, I believe, as a rule it is orthodox on every thing pertaining to the home. Sometimes I have thought it would have a better effect on the young boys if there were not so many sensational stories, including hair-breadth escapes, etc. But perhaps it would not then be read so thoroughly by almost every boy, from beginning to end, were it not for these stories that even I at my age find it hard to drop when I once start in to give it only a hasty glance. In artistic skill it comes pretty near taking the lead among our home papers.

Convention Notices

The Fillmore Co. beekeepers' annual meeting will be held at Preston, Minn., on Dec. 11 and 12.
Harmony, Minn., Nov. 21. P. B. RAMER, Sec.

The Wisconsin State Beekeepers' Association will meet in annual convention at the Capitol building, Madison, Wis., Feb. 3 and 4, beginning at 10 A. M. Tuesday. Headquarters for beekeepers will be at Simons Hotel. We are preparing an interesting program, and looking for a large attendance.
Augusta, Wis., Nov. 17. GUS DITTMER, Sec.

The Washington State Beekeepers' Association will hold its 20th annual convention in the Farmers' Room, in the Court-house, in North Yakima, on Wednesday and Thursday, January 7, 8, 1914. A good program is promised, and a surprise is in store for all who attend. A banquet will be served on Thursday. All beekeepers are urged to be present, whether you are a member or not.

J. B. RAMAGE, Sec.

North Yakima, Wash., Nov. 11.

CHICAGO NORTHWESTERN BEEKEEPERS' MEETING.

The meeting of the Chicago Northwestern Beekeepers' Association will be held Dec. 17 and 18 this year, at the Great Northern Hotel, Room L 38. The secretary has arranged a program with papers by several of the leading beekeepers. As this has been a good year, beekeepers should make every effort to attend. Chicago is centrally located, and we should have a good attendance from Wisconsin, Michigan, Indiana, Minnesota, and Illinois. A cordial invitation is extended to every one; and if you do not receive a card asking you to attend, this notice will be an invitation to all.

L. C. DADANT, Sec.

The Eastern Illinois beekeepers' convention will be held at St. Anne, Ill., in the Farmers' State Bank Building December 8 and 9, with an evening session on the 8th. Every effort for the best meeting ever held is being made, and the prospect is that it will be a success. Many prominent beemen have promised to come, including Mr. Baxter, Pyles, Kildow, I. F. Kenkell, of New London; also Geo. Lotz, of Boyd, Wis., has promised to come. Although the question-box method will prevail we expect a talk by Mr. Baxter and also by Mr. Pyles. A special rate of \$1.00 a day has been made at the hotels. Make an effort to come and help us make this convention better than any State convention.

St. Anne, Ill., Nov. 8.

H. S. DUBY, Sec.

The California State Beekeepers' Association will hold its annual convention at the Y. M. C. A., Los Angeles, Cal., Dec. 9, 10, 11. I can not give you complete program at present, but it will consist of live topics—topics not only interesting but very important—in fact, concerning the vitals of our industry.

Dec. 9, 1:30 P. M., meeting of the Directors of the Consolidated Honey-producers of California (an incorporation belonging to the Association). At 2:30 P. M. there will be a meeting of the executive committee and advisory committee (which consists of the Presidents and Secretaries of the county clubs and local organizations), and will continue the 10th and 11th.

Newhall, Cal., Oct. 21.

J. W. FERREE.

The annual convention of the Missouri State Beekeepers' Association will be held at Snapp's hotel, Excelsior Springs, Mo., Dec. 16 and 17, 1913. The following is the program:

DEC. 16, 8:00 P. M.

Paper—Beekeeping as a Business,
R. A. Holekamp, St. Louis, Mo.
Address—The Good Bees do for Humanity,
Dr. A. D. Wolfe, Parkville, Mo.
Paper—Beekeeping in Italy and France,
C. P. Dadant, Hamilton, Ill.
Speech—Wit and Humor of the Bee and the
Beekeeper,
J. T. Martin, Liberty, Mo.

SECOND DAY, 9:00 A. M.

Paper—Beekeeping in South Missouri and Northern Minnesota,
H. F. Strang, Cleo, Mo.
Address—How to Avoid Getting into Trouble
with your Neighbor on account of your Bees,
M. E. Darby, Springfield, Mo.
Address—How to Beat 'em if You Do,
A. T. Rodman, Kansas City.

Papers—Rearing Good Queens,
E. E. Lawrence, Doniphan, Mo.;
L. E. Altwein, St. Joseph, Mo.
Address—Mistakes of an Old Beginner,
Clay Foley, Missouri City, Mo.
Paper—The Best Way to Increase,
H. C. Gadberry, Miami, Mo.

1:30 P. M.

Address—A Commission Merchant's Experience
in Handling Honey,
C. C. Clemons, Kansas City, Mo.
Address—Experiences of a Supply Dealer,
C. E. Walker, Kansas City, Mo.
Address—How to get a Good Foul-brood Law,
J. W. Rouse, Mexico, Mo.
Paper—History of Missouri State Beekeepers'
Association,
W. T. Carey, Wakenda, Mo.

For the good of the association, everybody discuss and push it.

SOME OBJECTS PROPOSED FOR THE BENEFIT AND WELFARE OF THE MISSOURI STATE BEEKEEPERS' ASSOCIATION.

1. The promotion and maintenance of a social organization of people interested in apiculture.
2. To afford a means of recording the experience of its members.
3. To promote original investigation in the development of bee culture.
4. To co-operate in securing rational legislation for the control and elimination of foul brood.
5. To stimulate and promote the bee industry.
6. To maintain and protect the interests of the membership when they are in the right, morally, socially, and legally.
7. To promote and encourage improvements in methods of handling bees, queens, and honey.

Liberty, Mo. J. F. DIEMER, Sec.

The second annual convention of the Iowa Beekeepers' Association will be held at Des Moines, Ia., December 10, 11, 12, 1913. The following is the program:

WEDNESDAY, DECEMBER 10, 10 A. M.

Address by President, Frank C. Pellet, Atlantic; report of Secretary, S. W. Snyder, Center Point; report of Treasurer, C. H. True, Edgewood; reports of standing committees; appointment of committees.

1:00 P. M.

Some side lines on the farm, J. W. Jarnagin, Des Moines. Marketing the crop, W. P. Southworth, Sioux City. Beekeeping as a business, B. A. Aldrich, Smithland. Selling direct to the consumer, J. L. Strong, Clarinda. Ladies' informal meeting in sep-

arate room in charge of Miss Nina Secor, Forest City.

8:00 P. M.

Beekeeping in Europe, C. P. Dadant, Hamilton, Illinois.

THURSDAY, DECEMBER 11, 9 A. M.

Election of officers; arrangement of apary, C. H. True, Edgewood. Sweet clover; what it will do for the farmers and beekeepers of Iowa, by Frank Coverdale, Delmar. This address alone will be well worth the time and expense of a journey across the State to every beekeeper, especially those combining beekeeping with other branches of agriculture.

1:00 P. M.

Beekeeping as a side line, and the fun of the thing, Hamlin B. Miller, Marshalltown. Modern methods of caring for extracted honey, E. R. Root, Medina, Ohio. Mr. Root's address will be followed by a demonstration of capping-melter, power extractor, and other machinery for the large producer, by Mr. Root and Mr. F. C. Scranton, of Des Moines.

8:00 P. M.

How may we increase the consumption of honey? Eugene Secor, Forest City. Increase, J. W. Bittenbender, Knoxville. Advertising, Dr. A. F. Bonney, Buck Grove. Comb or extracted honey, C. L. Pinney, LeMars.

FRIDAY, DECEMBER 12, 9 A. M.

Beekeepers' legal status, Russell E. Ostrus, Attorney for Iowa Beekeepers' Association, Des Moines. Treatment of disease, Edward G. Brown, Sergeant Bluff. Helps and hindrances in dealing with foul brood, J. W. Stine, Salem.

1:00 P. M.

Address, Prof. W. J. Kennedy, Ames. A season's work, F. W. Hall, Colo. Exhibits, R. H. Longworth, Polk City. Every member is invited to bring samples of his best product, and to come prepared to demonstrate any new method of interest.

In September I advertised in all the bee papers published in the United States and Canada. Soon I was flooded with letters from all over the States, Canada, and several foreign countries, including postage for various sizes of packages. As fast as I received them I booked every order, and began mailing or prepaid express until my 5000 books were gone. I then got another lot, and they were soon gone! I then had to wait for 30,000 more to be printed, and they were delayed two weeks by freight. Over 600 orders for the books came during this delay, some asking for 100 copies, and many wanting more.

The League fund has been exhausted in printing, postage, drayage, freight, and help. I have 245 orders that I can not supply, and just a sample copy I can send with return postage to each. I am sorry that I can not supply all orders, and more are coming daily. Certainly the thousands of books I have sent, if placed in the hands of good cooks, will create a great demand for more honey.

I bought these valuable books of The A. I. Root Co., Medina, Ohio, and I believe you can buy them for \$4.50 per 100 copies. With these orders were reports for 1913, and generally beekeepers were selling most of their honey in a home market.

Platteville, Wis., Nov. 12. N. E. FRANCE.

The A. I. Root Co.:—Please give me a price on one dozen Italian queens. I used 25 of your queens last fall which I got through Mr. Hoshal, and have had the greatest success and the best crop of honey since I began keeping bees. I can probably sell a number of queens to my neighbors who keep a few colonies of bees. JAMES MARLOW.

Grimsby Park, Ont., Can., July 23.

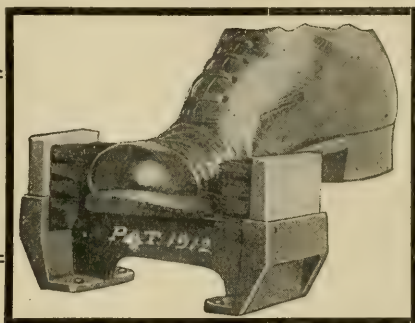
A REQUEST FOR THE PRAYERS OF GOD'S PEOPLE.

I have been a reader of GLEANINGS since 1908, and can say that I enjoy your paper, especially A. I. Root's Home papers. May God bless you, and long may you enjoy the blessings of health and strength to continue the good fight against liquor and the devil.

We are going to try to put the saloon out of our little village at next election. Give us your prayers, and ask God to help us put them out. J. T. J. Percy, Ill., Oct. 6.

Callender Shoe-scraper

Every House-
keeper will
want one



A glance at the
Illustration
will tell you
why.

Combination Scraper and Brush

Scrapes the mud from the sole of the shoe and cleans the sides at the same time. Every housewife should have one. It will reduce her work in saving the time necessary to clean rugs and floors, which otherwise would be tracked with dust and dirt from the street.

It is made of the finest material; no screws to rust; heavily japanned. Brushes remain stationary. It is so simple that a child can change the brushes.

Every household needs one or more.

Premium Offer: We will send one of these Callender Shoe-scrappers as premium to any reader who sends us TWO NEW subscriptions to GLEANINGS IN BEE CULTURE for six months at the rate of 25 cents each.

Postage on Canadian subscriptions 15 cents additional for each trial subscription for six months.

The A. I. Root Company, Medina, Ohio

A BEEKEEPER who uses cheap shipping-cases for his comb honey isn't necessarily mean. The chances are he's thoughtless. But many grocers or other dealers who receive his honey will not accept this generous view.

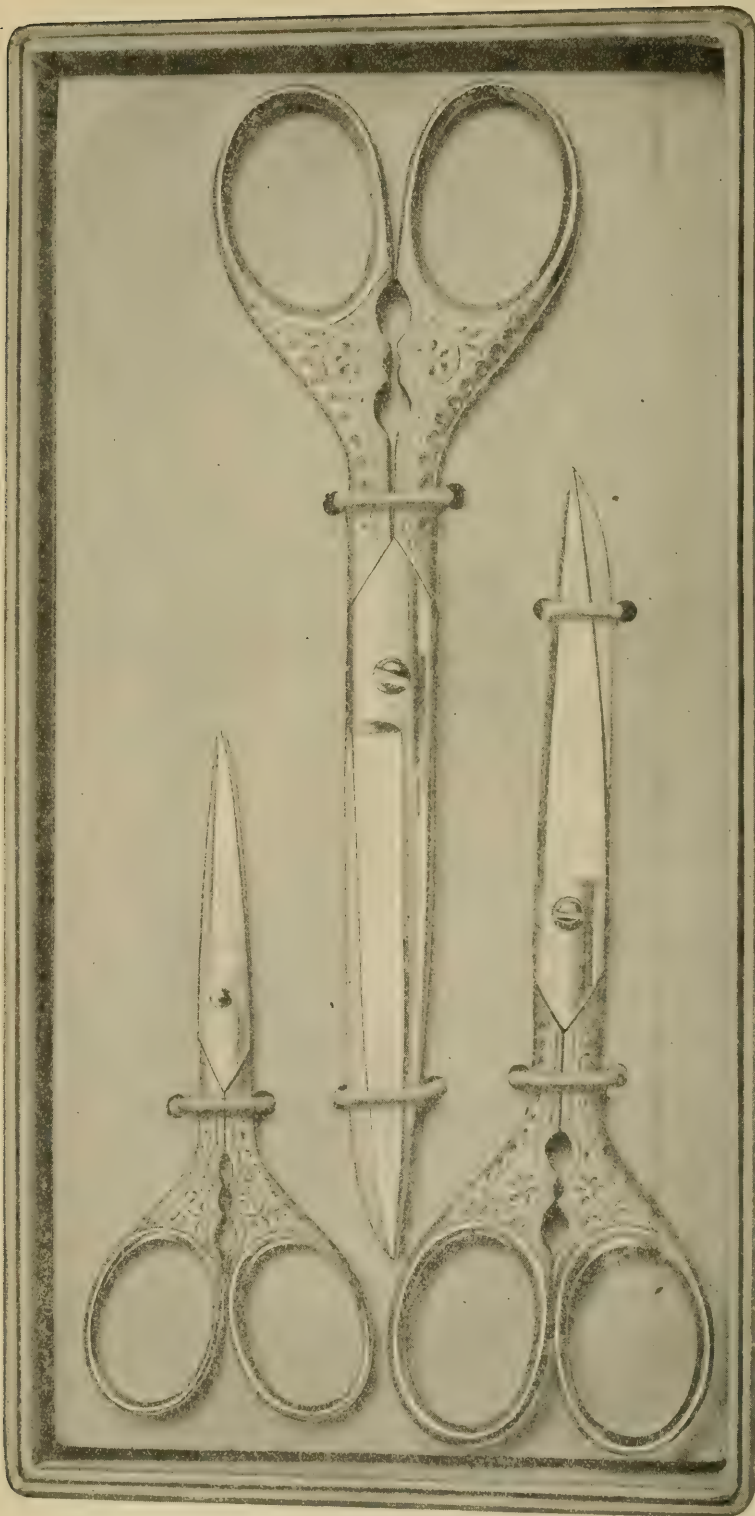
Among that number may be the very grocer he wants to influence most—the one who has the best trade in honey in that locality.

So he should use good shipping-cases, such as we make. To use them is economy, not an expense.

For particulars write us or our dealers, or consult our catalog.

The A. I. Root Company
Medina, Ohio

New York, Chicago, Philadelphia, Washington, Des Moines.



This set is made up of a pair of six-inch, a pair of five-inch, and a pair of three-and-one-half-inch embroidery scissors with nickel-plated and polished blades. Elaborately designed gold-plated handles. The three pairs of scissors in the set are mounted on a card and packed in a lined box. List price of scissors, \$1.00.

PREMIUM OFFER

We will send one of these sets of scissors postpaid to any reader who sends us one **new** yearly subscriber to **GLEANINGS IN BEE CULTURE** at \$1.00 per year, or the same for four **new** six-months trial subscribers at 25 cents each.

THE A. I. ROOT COMPANY, MEDINA, OHIO

NO. 501 SET OF QUALITY KNIVES

OUR set of "QUALITY" KNIVES is made up of one 8-inch SLICER, one 6-inch BUTCHER, and one 3½-inch PARING-KNIFE. A combination of three of the MOST USEFUL SIZES and DESIGNS that one can have in his home. In presenting this set of knives we want to impress upon the trade the fact that these knives are all their name implies, **QUALITY IN THE STRICTEST SENSE OF THE WORD.** There is nothing better in the way of cutlery to be had for **IT IS IMPOSSIBLE TO MAKE ANYTHING BETTER.** The Set is **MADE UPON HONOR THROUGHOUT** to the MINUTEST DETAIL. **BLADES** are of the **VERY BEST TEMPERED CRUCIBLE STEEL, SWEDGED, ETCHED, and FINISHED** with the Highest Polish it is possible to put on metal. Handles are **GENUINE COCOBOLO, Beveled Edges, Through Tang** with **Three Large Brass Saw Rivets.** We **ABSOLUTELY GUARANTEE** the **QUALITY** of this set of knives to be **Strictly First Class in Every Way** and the **BEST VALUE EVER OFFERED.** **LIST PRICE** the set \$1.00 postpaid.

PRICE
\$1.00
PER SET
POSTPAID



No. 501 Set of
Quality Knives

Premium Offer

We will send this complete set of knives postpaid to any reader who sends us one new yearly subscriber to *Gleanings in Bee Culture* at \$1.00 per year, or the same for four new six-months-trial subscribers at 25c. each.

A WORD OF PRAISE FOR THE PREMIUM KNIVES.

Calvert, Ala., Oct. 22, 1913.

The A. I. Root Co., Medina, Ohio.

I received the set of premium knives and am well pleased with them.

Yours very truly,

R. RHODENBERGER.

The A. I. Root Co., - Medina, Ohio.

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INSURANCE

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DECEMBER IS 4 PER CENT.**

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We have a large demand for this product, and are turning out comb foundaion of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 5 per cent.

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San Antonio, Texas

The Best Christmas Present
for Your Family—
A Year with The Youth's Companion



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Give it to whom you will, you will find all the family looking for it. It is more than fifty-two brimming issues of the finest reading the world offers—it is an *influence* for all that is best in home and American life.

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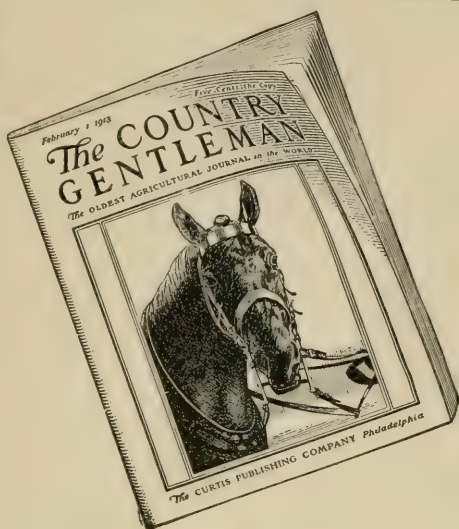
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THE YOUTH'S COMPANION, BOSTON, MASSACHUSETTS



*Your Grandfather Read It,
Your Father Read It,
Are YOU Reading It?*

Buying the Farm

"What would you consider these places adjoining yours worth?"
 "About \$30 an acre."
 "That is, if you, as a local man, went to buy them you could get them at \$30 an acre?"
 "That's it."
 "But if I, as an outsider, went to buy them —"
 "They'd probably size you up as from town, and ask you \$80 to \$100. I've known two or three places on this road where sales have been spoiled that way."
 "Meanwhile they have been in the hands of tenants for thirty years and have gone back in value from \$150 and \$200 to \$20 and \$30 —"
 "Yes, it's that dog-in-the-manger policy that has hurt us."

Here is land lying in one of the most beautiful and fertile valleys of the section between the Hudson and Connecticut—a valley that used to be the seat of an old colonial aristocracy, where most of the buildings could not be replaced now for less than \$20,000 or \$30,000.

If you have the least desire to own a bit of land of your own and think a farm beyond the dreams of avarice, you should read the series of six articles by A. C. Laut telling about the bargains in old farms, on good roads, within a hundred miles of New York City, that can be picked up at from \$10 to \$50 an acre. *A thousand dollars, actual cash, can finance a 25-acre unimproved farm purchase.*

A Living From the Farm

Then, having the farm, if you want to know how to live and to make a living out of it, read **Back to the Farm—Net**, a five-part story of city dwellers who took a chance and made good in the country.

The *Net* is what they got out of it—what you can get out of it: Instruction, health, comfort, contentment, and a heritage of health for the children.

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For several years the Department of Agriculture, through its field agents, has been experimenting with various farms, with the owners' co-operation, along the lines of system and efficiency. We are able to publish the results in a series of four articles, under the title **Old Farms Made New**. They tell how to replan a farm for economy in time and labor, as efficiency experts plan a factory.

The difference is the difference between a deficit and dividends.

If you actually become your own boss and work at getting a living out of the land, there's no paper in the world you need so much as

The COUNTRY GENTLEMAN

Five Cents the Copy, of all Newsdealers. \$1.50 the Year, by Mail

THE CURTIS PUBLISHING COMPANY, Independence Square, Philadelphia, Pa.

Gleanings in Bee Culture



VOL. XLI. DEC. 15, 1913, NO. 24.

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The A. I. Root Company, Medina, Ohio

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Take advantage of the early-order discount, send us your list of requirements, and we will quote you our very best factory prices and discounts.

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This is the title of a newly revised book by E. R. Root, going into full details on

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and in general

How to Winter Bees Outdoors

It will save many times its cost in one winter. . Price 10c.

Published by

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HOW FAR CAN A BEE SEE?

That question has been argued "time and again," but it doesn't worry me one-half so much as does another question—

How much can you see?

How many people there are to look, and how few there are to see and to think!

The best realms for good seeing are in nature.

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tells you how. . It teaches people to see the wonders and beauties of nature.

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Edward F. Bigelow, Editor,

The Agassiz Association, Inc.

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Sound Beach, Connecticut

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G. B. Lewis Company, Watertown, Wis.

HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of the comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 dark," etc.

NEW HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped, except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very light amber; combs and cappings from white to slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than $13\frac{1}{2}$ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and en-

tirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means except the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb, 16 to 17; white extracted, 10 to 11. Beeswax, 30. There is an active demand for white comb honey.

Boston, Mass., Dec. 6. **BLAKE-LEE CO.**

COLUMBUS.—Fancy white comb brings $17\frac{1}{2}$; No. 1 white comb, $16\frac{1}{2}$ to 17; only a fair demand, on account of approaching holidays.

THE EVANS & TURNER CO.
Columbus, Ohio, Dec. 2.

INDIANAPOLIS.—Honey is now moving freely. Fancy white comb is selling at 16 to 17; No. 1 white, one cent less; finest extracted, 9 to 10 cts. in square five-gallon cans. Beeswax is in good demand, and producers are being paid 32 cts. in cash or trade.

Indianapolis, Ind., Dec. 6. **WALTER S. POWDER.**

LIVERPOOL.—The market for Chilian honey is very dull, and there is practically no business being done. For pile X, \$8.40 is quoted; pile 1, \$6.96 to \$7.20; pile 2, \$6.48; pile 3, \$6.00; pile 4, \$5.52. By the steamships Florence and Ville du Havre, 767 barrels arrived.

Liverpool, Eng., Nov. 28. **TAYLOR & CO.**

SCHENECTADY.—The holiday rush is now on, and the honey market is quiet. We can not understand why there is less honey used at this time; but the wholesale market is generally dull during the latter part of December. We do not change quotations, but stock is moving slowly.

CHARLES MACCULLOCH.

Schenectady, N. Y., Dec. 5.

Honey reports continued on page 5.

30 DISTRIBUTING HOUSES FOR LEWIS BEEWARE

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G. B. Lewis Company, Watertown, Wis.

We are in the Market for Both Extracted and Comb Honey

Would like to hear from those having Fancy and Number One Comb Honey. State best prices delivered Cincinnati. We want Extracted Honey, too. No lot too large or too small for us. We remit the very day shipment is received.

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204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and let us render them for you. Our process extracts the last drop of wax from the slumgum. We make money for you if you will ship us your old combs and cappings for rendering. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

Honey and Wax

If you haven't made arrangements for the disposition of your honey and wax for this season consult us. We buy both in large quantities, and can assure you of fair and courteous treatment, and a good price for your crop.

Shipping Cases

To sell your crop to the best advantage it must be well put up in attractive style. We have shipping cases that answer every requirement of looks and utility. Small producers who sell their crops locally will be interested in the cartons in which comb honey is put up to sell to the fancy customers at top-notch prices. We have honey-cans too, in cases for those who produce extracted honey. In fact, there isn't any thing we don't have that the beekeeper needs, either to produce his crop or help to sell it.

Early-order discount this month is 4 per cent.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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Editor

A. I. ROOT

Editor Home Dept.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, P. C. Chadwick.

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DISCONTINUANCES. Notice is given just before expiration. Subscribers are urged, if unable to make payment at once after expiration, to notify us when they can do so. Any one wishing his subscription *discontinued* should so advise us upon receipt of the expiration notice; otherwise it will be assumed that he wishes GLEANINGS continued and will pay for it soon.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to the order of The A. I. Root Co., Medina, Ohio. Currency should be sent by registered letter.

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IDAHO FALLS.—Comb honey is all sold. We quote fancy white extracted, in 60-lb. tins, at 7 cts.

IDAHO HONEY-PRODUCERS' ASSOCIATION,
Idaho Falls, Dec. 6. F. C. BOWMAN.

BUFFALO.—There is not much change in our honey market since our last quotation. Demand is slow, and no signs are in sight that look any better. No. 1 to fancy white comb brings 16 to 17; No. 2 ditto, 14 to 15; No. 1 buckwheat comb, 13 to 14; white extracted, 8½ to 9; dark, 6½ to 7½. Beeswax brings 26 to 30. Receipts of comb honey are light.
Buffalo, Dec. 8. W. C. TOWNSEND.

DENVER.—Our local market is well supplied with honey, and our jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice, \$2.57; No. 2, \$2.43; extracted white, 8 to 9 cts. light amber, 7 to 7½. We are in the market for beeswax, and pay 30 cts. per lb. in cash, and 32 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
Denver, Col., Dec. 6. FRANK RAUCHFUSS, Mgr.

NEW YORK.—We quote as follows from the *Journal of Commerce and Commercial Bulletin*, Dec. 9: Quiet market with most outside quotations full. Clover, comb, fancy, per lb., 16; ditto No. 1, 15; ditto No. 2, 13; clover extracted, per lb., 8½ to 9½; buckwheat, comb, per lb., 12; West Indian, extracted, per gal., 60 to 62. Supplies of choice domestic wax are very light, and market closes firm in range of 32 to 34.

New York, Dec. 9.

NEW YORK BRANCH.

ZANESVILLE.—Despite the proximity of the holidays, when a lull is usually to be expected, the demand for honey continues fairly good. Ruling prices to the retail grocery trade are as follows: Fancy white, 20; No. 1 white, 18½ to 19; light amber, 17. Extracted in five-gallon cans, 9½ to 11, according to quantity. This applies to best grades, as there is little demand for off grades here. Producers are paid 30 cts. cash, 32 trade, for beeswax of good average quality. Wax wholesalers at 40 cts. up, according to quantity.

Zanesville, Ohio, Dec. 3.

E. W. PEIRCE.

ALBANY.—The honey market is easing off, as the demand is falling off. Stock and receipts are light, but demand is light; and as cold weather advances it will not increase any. The weather for two months has been very favorable. We quote fancy white clover, 16; medium, 15; buckwheat and mixed, 13 to 14. Extracted is very dull, and stock is accumulating. Prices favoring the buyer will be lower before we can move the accumulations. We quote nominal, but do not refuse offers. Buckwheat extracted, 7 to 7½; mixed clover, 7 to 7½; white clover, 8 to 8½. Beeswax, 31 to 32.

Albany, N. Y., Dec. 4.

H. R. WRIGHT.

ST. LOUIS.—The demand for comb honey has improved somewhat, but is not nearly what it should be. The market is well supplied, especially the fancy white western stock. There is also quite an abundance of Southern comb honey in this market. We are quoting to-day in a jobbing way, fancy comb honey at 15 to 16; No. 1, 14; light amber, 11 to 12; dark amber, 9 to 10; by the case, fancy white comb honey, \$3.00 to \$3.25; No. 1, \$2.50 to \$2.75; light amber, \$2.25 to \$2.40; dark amber, \$1.75 to \$2.00 per case; light-amber extracted, in barrels and half-barrels, 6½ and 5-gal. cans, 7½. Beeswax is in good demand at 32 for prime. Inferior and impure sells for less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Dec. 8.

BANKING BY MAIL AT 4%

Throughout the Country

Medina is known to thousands interested in the culture of bees.

Likewise has the Savings Deposit Bank Co., of Medina, become known to hundreds of people far and near—they are mailing their funds for deposit at 4 per cent interest with this strong million-dollar institution.

Banking by Mail is a practical plan which assures safety, privacy, and liberal interest on your money.

Write for more information.

THE SAVINGS DEPOSIT BANK CO. MEDINA, OHIO

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E. B. SPITZER, Cashier.

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At least two per cent of the gross revenues of some railways is spent in satisfying claims for damages. On the Boston & Maine, for example, damage to property and personal injuries entailed an expenditure of over \$800,000 in 1911. On another railway, at the end of one year's business, claims amounting to nineteen millions were pending. The "claim agent" must combine in himself many varied qualities, and J. O. Fagan (the expert so widely known as "the Railway Signal Man") makes us intimate with him in interesting experiences on the "human side." The article is one of hundreds announced by *The Youth's Companion* for 1914.

GET TOP NOTCH PRICES BY USING LEWIS SECTIONS FOR YOUR HONEY AND SHIPPING CASES

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Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

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CIRCULATION 35,000.

Issued semi-monthly.

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A Day with Edison

"I feel bully today, I slept only four hours last night."

This customary morning greeting of the great inventor after one of the big days he delights in, gives an insight into his wonderful recuperative powers, which enable him to "come back" constantly, with undiminished vim and energy, after the most arduous work.

To realize how fully Mr. Edison lives up to his sobriquet of "the Human Dynamo," you must read the intensely interesting account of one of his ordinary days (a mere eighteen hours or so) in

POPULAR ELECTRICITY AND THE WORLD'S ADVANCE for December

Mr. W. H. Meadowcroft, the author, has worked for years side by side with the great inventor and enjoys his confidence. He is, therefore, able to give you an intimate view of Mr. Edison through every moment of his long and strenuous day. From the time the great man arises in the morning until he retires, far into the night, you will follow his goings and comings; be with him in his laboratory, shop and test room; so close that you get a glimpse, even, of his wonderfully interesting mail from all over the civilized world and read the queer and freakish problems propounded to him. With Edison it is half an hour here, twenty minutes there, ten minutes another place, meeting instantly and squarely a staggering number of difficult situations and intricate problems. You will wonder at the many things he does in a day and how he makes every minute and every second count.

Among other stirring articles in this same issue

Now On Sale At Your Newsdealer's

are: Dr. Carrell's Living Machine—First Photographs of Schroeder-Stranz Expedition—Electrocution in Arkansas—Filming a Raid on Moonshiners—Uncle Sam as a Motion Picture Man—Fighting Forest Fires—Attacked by "The Little Ice Devils"—Batson's Trans-Atlantic Flyer—Magic Flats—World's Mortar Fire Record—Electric Dynamite Truck in City Streets—Iron Making in Central Africa—and these are only typical of the

200 Fascinating Subjects

of devouring interest which, with

200 Absorbing Illustrations

give you one of the most interesting of magazines. Just note this brief summary of good things:

MOTION PICTURE DEPARTMENT of latest photo plays and stories with all the fascinating details of motion picture production.

WORLD'S PICTURE GALLERY of striking photographs from everywhere. History in the making. Wonderfully interesting

THE GREAT ELECTRICAL SECTION tells simply and entertainingly the fascinating story of electricity and how to make and do things with it yourself.

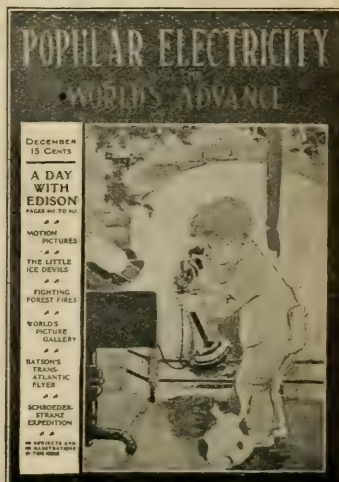
MANY OTHER LIVE ARTICLES on modern progress in all lines. Vivid, living pictures and stories of the world in action—interesting—educational—uplifting. This immense entertainment of 128 Pages—200 Subjects—200 Illustrations—awaits you in

POPULAR ELECTRICITY AND THE WORLD'S ADVANCE for December 15c a Copy

Get It Today From Your Newsdealer.

If your dealer cannot supply you send us his name and your own name and address with 15c for a copy postpaid.

POPULAR ELECTRICITY PUBLISHING CO., 350 No. Clark St., CHICAGO, ILL.



HONEY Bought Sold...

Central Ohio Honey Market

Finest quality WHITE-CLOVER honey a specialty. Producers who have not yet sold their crop should write. Those who have disposed of their crop and are in need of more for their trade, I shall be glad to supply at lowest prices consistent with highest quality and a fair margin of profit.

The correspondence of wholesale and retail dealers is especially solicited, as I am in position to furnish a grade of comb and extracted honey that will suit the most exacting trade. If interested, write for quotations and full description of the line.

Bee Supplies

Now is the best time to place your order for supplies for use next season. The prospect was never brighter, and there is every thing to gain and nothing to lose by ordering before the spring rush is on. Ask for revised price list and early-order discounts.

**Root Quality and Peirce Service
from Ohio's Supply Center**

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

INCREASE Your SALES

... By a Liberal Distribution of Our Booklet ...

THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back cover page affords space for a display advertisement. As this booklet contains no advertising whatever, it can be employed with telling effect. Better order your supply early. Sample and prices in quantities on application.

Fifty-eight pages; one hundred and twenty-two valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

Address the Publishers

THE A. I. ROOT COMPANY, MEDINA, OHIO

BEEKEEPERS, ATTENTION!

If you have any extracted or comb honey to offer, send us samples of quality; state quantities, and how packed. We pay the highest market price for the same. We are paying 31c cash for nice, bright, clean beeswax.

CHAS. ISRAEL & BROS., NEW YORK
486 Canal Street

PATENTS

25
YEARS'
PRACTICE

CHAS. J. WILLIAMSON, McLaughlin Building, Corner
Tenth and G Sts., WASHINGTON, D. C.

Patent Practice in Patent
Office and Courts

Patent Counsel of
The A. I. Root Co.

How to Keep Bees

By

Anna Botsford Comstock

This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood.

Price \$1.00 postpaid by

The A. I. Root Co.
Medina, Ohio

Boston is the Shipping Center of New England

Beekeepers should bear this in mind when ordering their supplies. A full line of supplies always in stock. Send for catalog

H. H. JEPSON

182 Friend Street - BOSTON, MASS.

RAW FURS AND GINSENG



No Express on lots over
\$10 . No commission.
You get value received
when you ship to . . .

GEORGE E. KRAMER
Valencia, Pa.

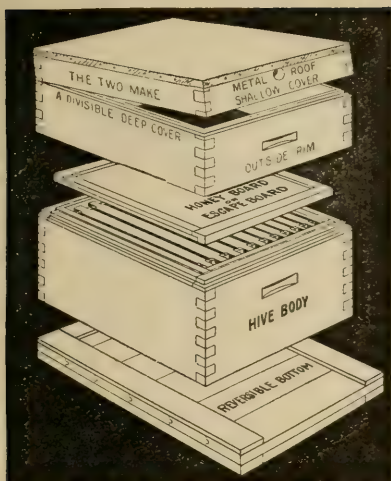


Latest Book "Profitable Poultry"

Finest published, 128 pages practical facts, 180 beautiful pictures. Tells how to breed, hatch, feed and market by latest improved methods. All about **Runner ducks** and 52 other pure-bred varieties. This 50 cent book and lowest price list of best fowls, eggs, incubators, supplies, etc., only 5 cents.

BERRY'S POULTRY FARM, Box 97, Clarinda, Iowa

The famous polar explorer, Sir Ernest Shackleton, who preceding Amundsen and Scott in the antarctic, succeeded in reaching what was then "the farthest south," describes, in an article written for *The Youth's Companion*, the qualities that lead to success in polar work, and illustrates them by thrilling incidents drawn from actual experiences in the ice.



PROTECTION HIVE

The Shallow Metal-roof Cover and the outside rim make a divisible deep cover which can be handled together or in part. They eliminate the chaff-tray nuisance and the heavy bungle-some deep cover in manipulation. The rim holds the overhead packing in winter, and acts as a super protector at other times. This combination is the finest in hive construction on the market to-day.

Dead-air spaces or packing, as you prefer; $\frac{3}{4}$ material in the outer wall. Special circular showing 16 large illustrations will explain all.

A. G. Woodman Co.,
Grand Rapids, Mich.

The BEEKEEPERS' REVIEW

would like very much to enroll a goodly number of new subscribers for the year 1914. We are printing 400 extra sets of the REVIEW for the last half of 1913; and as long as they last they will be included free to all new paid-in-advance subscribers for 1914. All progressive beekeepers should subscribe for two or three good bee journals. We are making a special low price on the REVIEW when clubbed with other bee journals.

Here is a { GLEANINGS, one year, \$1.00 } Both, one year, for \$1.50.
good one: { The REVIEW, one year, \$1.00 }
Here { GLEANINGS, one year, \$1.00 }
is an- { AMER. BEE JOURNAL, 1 yr., \$1.00 } All Three for \$2.00.
other: { The REVIEW, one year, \$1.00 }

THE BEEKEEPERS' REVIEW,

NORTHSTAR, MICHIGAN

BETTER LIGHT from KEROSENE

Beats Electric or Gasoline

TEN DAYS FREE

SEND NO MONEY

Without sending a cent you can use this wonderful, economical light 10 days free, then return at our expense if not satisfied. Gives powerful white incandescent light, burns over 50 hours on one gallon Kerosene (coal oil). No odor, smoke or noise, simple, clean, won't explode. Guaranteed. We want one person in each locality to refer customers to.

Write for 10-DAY FREE TRIAL AGENTS OFFER—agents' wholesale prices and learn how to get **ONE FREE**. **WANTED** Make money evenings and spare time. One farmer cleared over \$500 in 6 weeks. Exclusive territory given.

MANTLE LAMP CO., 350 Aladdin Bldg., Chicago, Illinois

The Management of OUT-APIARIES

72-page book by the well-known writer G. M. Doolittle, New York

Non-swarming, or the control of swarms in the home yard, is a comparatively easy problem; but the securing of perfect control of the swarming impulse in four or five yards located some distance from your dwelling is not so easily accomplished. The author tells how he secured this and an average of 114½ lbs. of comb honey in a poor season. His latest methods are fully described in the fourth edition of the above. 1913 edition ready for mailing. Price 50 cts. postpaid. Order now from the publishers.

The A. I. Root Co., Medina, O.

RHODES DOUBLE OUT PRUNING SHEAR



RHODES MFG. CO.

528 S. Division A.,

GRAND RAPIDS, MICH.

Cuts from both sides of limb and does not bruise the bark. We pay Express charges on all orders. Write for circular and prices.

"If goods are wanted quick, send to Pouder."

This Bee-supply House is Twenty-five Years Old This Month

This advertising business is an interesting subject, and I have given it hard study for just twenty-five years. An expert advertising man of this city, Mr. Carl D. Spencer, has this to say in one of his announcements: "In September I canvassed over two hundred homes and asked questions. I learned this: That practically everybody reads advertisements; that nearly everybody doubts the truth of advertisements generally; that most people do not separate the true from the false, but discount what is said in all or nearly all of them; that almost every one has been tricked into spending money through false or misleading advertisements. They blame the business man and not the magazines because false advertising is permitted, and every one desires a means by which she or he may recognize a truthful advertisement."

The above interested me greatly, and I have been trying for a solution as to how to have my advertising identified as the genuine article. I have never overrated my class of goods. In bee supplies I simply say that the goods which I handle are the Root make, and that speaks volumes. I receive hundreds of testimonials from those who have dealt here, and these same friends are recommending my goods to their neighbors. In shipping large orders of bee supplies, there is a declining scale of prices on quantity lots, and I save this for my patrons, often unexpectedly to them, but gratefully received as a rebate. Frequently neighbors club together and secure their supplies in one shipment, thus creating a saving in the aggregate cost as well as in transportation charges. I should like to place my catalog of supplies in your hands, which shows the new schedule of prices, and gives list of discounts offered for early orders. I also include with each catalog a letter which I should like to have you read.

Just now I am advertising finest extracted honey by parcel post. I am mailing tight-seal cans containing four quarts, two quarts, and one quart, and also paper honey-jars filled with granulated honey. With these paper honey-jars one can peel off the waxed paper and leave a beautiful cone of white granulated honey to serve on the table, and I assure you that this has never been equaled in any confection. This is strong language; but if you receive a sample you will admit that my advertisement is not overdrawn. I have mailed these goods to Chicago, Cincinnati, Louisville, and to many small towns, without a failure thus far. Perhaps some of you would like one of these packages mailed to some of your friends as a Christmas souvenir. Can you think of a nicer, *sweeter* token? If interested let me mail you my descriptive circular with price list. I will also include price list of honey to be shipped in larger quantities.

Walter S. Pouder, Indianapolis, Ind.

873 Massachusetts Avenue

LEWIS HIVES ARE BUILT LIKE FURNITURE ARE PERFECT IN ALL RESPECTS

Send for Annual Catalog which will tell you who is your nearest Distributer.
G. B. Lewis Company, Watertown, Wis.



Established 1885

We carry an up-to-date
line of

Beekeepers' Supplies

Write for our 64-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle THE A. I. ROOT CO.'S goods, and make prompt shipments; freight facilities good. Let us hear from you. . . . Beeswax taken in exchange for supplies or cash.

JOHN NEBEL & SON SUPPLY CO.
High Hill, Montgomery Co., Mo.

IF YOU USE

bee supplies you should have our catalog.
We sell the best No. 25 jar made.
Heavy cartons that protect honey.

I. J. STRINGHAM, 106 PARK PLACE, NEW YORK
Aplaries, Glen Cove, L. I.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager

FRENCH'S

THE ORIGINAL POULTRY MUSTARD IN AMERICA

Write to us for information.
Booklet and circulars free.

THE R. T. FRENCH COMPANY, Mustard-Makers
ROCHESTER, N. Y. Department D.

Special Sale of Honey

WE HAVE produced a fine lot of extracted honey this season from our eight out-yards. In addition to our own honey, we have purchased many other lots from prominent producers, and are now able to offer for prompt shipment the following flavors of extracted honey:

ALFALFA,	PALMETTO,
SWEET CLOVER,	ORANGE,
WHITE CLOVER,	LIGHT AMBER,
ALSIKE CLOVER,	DARK AMBER,
BASSWOOD,	BUCKWHEAT.

We have some very fine lots of Ohio, Michigan, and Wisconsin WHITE-CLOVER COMB HONEY. For those who have not secured a good crop, and are wanting some fine lots for their trade, we can furnish them any desired quantity.

Write for our special prices.

The A. I. Root Company
Medina, Ohio

NO MORE RABBITS If you want a cheap and safe method for keeping RABBITS and BORERS out of your orchard, paint your trees with "SULFOCID" the new concentrated sulphur compound. Easy to prepare and apply. One application lasts one year. "SULFOCID" solves the rabbit problem. Write today for booklet, "SULFOCID, Sure protection from rabbits and borers." Address B.G. Pratt Co., 50 Church St., N.Y.



"Griggs Saves Your Freight"

TOLEDO

"Griggs Saves Your Freight"

is the place all successful beemen have their eyes on now. Proof is the way orders are streaming in here from all over the United States.

Root's Shipping Cases for Honey

We are well supplied with shipping cases for your comb honey, all sizes and styles. Don't put a nice crop of honey in old musty dirty cases. Get new ones, and get the top price for your crop. . . . NEW 60-POUND CANS, two in a case, a specialty. . . . FIRST-CLASS ALCOHOL-BARRELS, the best package for extracted honey. We prefer barrels to cans if we get them early. Let us know what you have to offer in both COMB and EXTRACTED HONEY. We are in the market for any quantity.

Send in your BEESWAX and turn it into money. Sections and foundation sent out the day the order is received. If you are short, send to us. Quick deliveries are our pride.

S. J. GRIGGS & CO., - 26 NORTH ERIE STREET, - TOLEDO, OHIO.

"Griggs is always on the job."

New Goods Arriving!

We are getting our stock for next season, and should be glad to have your order for any supplies you are to use next year. A folder, with new prices, will be mailed you on request. . .

The A. I. Root Co., Syracuse, N. Y.

HAVE YOU SEEN IT?

. . . THE . . .

NEW American Bee Journal

IT PLEASES

FRIEND DADANT:—Say, do you folks know that the Old Reliable is just more than forging to the front?

Yours truly,

Lansing, Mich., Feb. 9.

A. D. D. Wood.

NEW Editor NEW Cover NEW Manager

Select Material

Illustrated

Free Sample Copy

\$1.00 a Year

C. P. DADANT

DR. C. C. MILLER

American Bee Journal, Hamilton, Illinois

PAY NO TRIBUTE TO THE TRUSTS! Reduce YOUR Cost of Living!

"A penny saved is a penny earned."

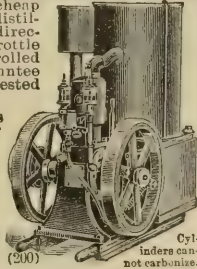
Why pay tribute to machinery and oil trusts? Have your farm work done by engines at factory prices; save money on your engine and on its operation. Kerosene is getting lower in price, gasoline is constantly advancing.

The Amazing Detroit Kerosene Engine

—sold to you at factory prices, is the engine which will help you beat the Trusts. It runs on cheap kerosene (coal oil), uses alcohol, distillate or gasoline also—runs in either direction—has only 3 moving parts—throttle governed—water cooled—speed controlled while running—sold on 5-year guarantee and 15 days' trial. Every engine tested and shipped ready to run.

NO Cams **NO** Sprockets
Gears Cranking
Valves Trouble

Engine pumps, saws, threshes, churns, separates cream, grinds feed, shells corn, does other farm work. Simplest engine in the world. Why pay trust prices when you can get the Amazing Detroit at factory prices? Write today for catalog and special introductory prices.



Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.

THE RANGE THAT BAKES

The Heat-retaining **STONE OVEN BOTTOM** Dustless Ash Sifter—"No Odor" Hood are exclusive "IMPERIAL" features. Guarantee better cooking and baking besides saving $\frac{1}{2}$ labor and $\frac{1}{2}$ fuel. You can have an absolutely **Free Trial in Your Home for 30 Days.** No obligation. You have no dealer's profit or freight charges to pay. Credit if you want it.

Write today for special prices and **FREE Book** on Ranges and Heaters.

The Imperial Steel Range Co.
440 Detroit Ave., Cleveland, O.

LIKE MOTHER BAKED

Big Money in Poultry Get the Facts!



are making money the Belle City way. They tell you how in my new Book of "Hatching Facts." Free to you. Illustrates in actual colors my 8-Times World's Champion Belle City. You get an exact duplicate of the prize winning World's Champion machines. Backed by my Money-Back Guaranty. Jim Rohan, Pres. Belle City Incubator Co., Box 69. Racine, Wis.



FREE BOOK ON FERTILIZERS

NO ADVERTISING IN IT, although our fertilizers follow all its requirements. If you are not already using or selling our goods, it might pay you to look them up. We make a fair business proposition for live agents. Ask our office nearest you to send you the book, addressing your request to **Manager Grower's Department** in whatever office addressed.

The American Agricultural Chemical Co.

Boston, Mass.	Pensacola, Fla.
New York, N. Y.	Savannah, Ga.
Philadelphia, Pa.	Montgomery, Ala.
Baltimore, Md.	Charleston, S. C.
Cleveland, Ohio.	Columbia, S. C.
Cincinnati, O.	Spartansburg, S. C.
Jacksonville, Fla.	Wilmington, N. C.
Norfolk, Va.	



Make Your Hens Lay

You can double your egg yield by feeding fresh-cut, raw bone. It contains over four times as much egg-making material as grain and takes the place of bugs and worms in fowls' diet. That's why it gives more eggs—greater fertility, stronger chicks, larger fowls.

MANN'S LATEST MODEL BONE CUTTER

Cuts easily and rapidly all large and small bones with adhering meat and gristle. Automatically adapts to your strength. Never clogs. Sent on **10 Days' Free Trial.** No money down. Send for our free books today.

F. W. MANN CO.

Box 37

MILFORD, MASS.





THE Coward Good Sense Shoe

Designed to protect children's feet and aid shapely growth. Graduated heel-seat steadies the ankle; Coward Extension Heel supports arch muscles—broad tread leaves the great toe unhampered, encouraging a sprightly, confident walk.

Coward Arch Support Shoe and Coward Extension Heel made by James S. Coward for over 30 years.
FOR CHILDREN, WOMEN AND MEN.
Send for Catalogue. Mail Orders Filled.

Sold Nowhere Else.

JAMES S. COWARD

264-274 Greenwich St., near Warren St., New York



THE "BEST" LIGHT

A portable, pure white, steady, safe light. Brighter than electricity or acetylene, 100 candle power. No grease, dirt nor odor. Lighted instantly. Costs 2 cts. per week. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.

306 E. 5th St., Canton, Ohio

MAKES AND BURNS ITS OWN GAS



40 ACRES solid to Superb. Progressive. Americans and other best everbearers. Get acquainted offer for testing. Send us 10c for mailing expense, and we will send you 6 high quality everbearing plants (worth \$1) and guarantee them to fruit all summer and fall, or money refunded. Catalogue with history **FREE** if you write today.

THE GARDNER NURSERY CO.

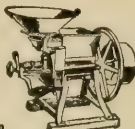
Box 130 OSAGE, IOWA

Write for Factory Prices
You save middlemen's profits. We ship, freight prepaid, our

QUAKER CITY MILLS

on ten days' free trial. 23 styles, hand power to 20 h. p. Grind meal of all description, corn, or the finest possible. Get at once our catalogue, also book on farm supply bargains.

The A. W. Straub Co., Dept. R 3748-50
Hilbert St., Philadelphia, Pa. Dept., G3703-11 So. Ashland Ave, Chicago



BROWN

Direct from factory, freight prepaid. Over 150 styles for every purpose, all Double galvanized. 12c per rod up. New Bargain Catalog and Sample to test, **ALL FREE.** Mail postal NOW, to

THE BROWN FENCE & WIRE CO.
Dept. 91 Cleveland, Ohio



FENCE



ABC

of Chicken Profits—FREE

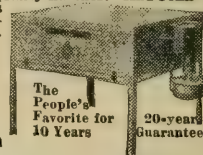
The new issue of the famous Old Trusty book is now ready to mail. Send Johnson your name and get the bedrock facts on making profits with chickens. Learn how Johnson started half a million people the simplest and easiest way with his

Old Trusty

No other maker can come within \$4 or \$5 of Johnson's 1914 prices on this highest quality hatcher. And Johnson pays freight. Orders filled the day received—90 days trial. You succeed or trade back.

Write at once for new book whether you start now or not. Address

**JOHNSON
Incubator Man
Clay Center, Nebraska**



The People's Favorite for 10 Years

20-years Guarantee



Save \$5 to \$40

8 Months to Pay

Get factory prices on Kalamazoo Stoves—30 Days' Free Trial A Year's Approval Test and \$100,000 Bank Bond Guarantee.

"A Kalamazoo"
Trade Mark Registered Direct to You

And Gas Stoves Too

Cash or Easy Payments—400 Styles

Fine base burners—glass oven door ranges—all kinds and all styles, with latest improvements. Nowhere can you find better quality—over 250,000 buyers prove it. Orders filled, freight paid, the day they arrive. Mail a postal card for catalog No. 416

Kalamazoo Stove Co., Mfrs., Kalamazoo, Michigan

DOUBLE SPRAYING RESULTS

by saving half the solution and labor with the "Kant-Klog" Sprayer

Nine different sprays—from fine mist—round or flat—coarse or fine—starts and stops instantly. Ten different styles. Mail postal for special offer. Agents wanted.

Rochester Spray Pump Co.
207 Broadway, Rochester, N. Y.



FARM FENCE

FROM FACTORY TO FARM



26-inch Hog Fence,....14c.
41-inch Farm Fence,....21c.
48-inch Poultry Fence,....22½c.
80-rod spool Barb Wire, \$1.40

Many styles and heights. Our large Free Catalog contains fence information you should have.

COILED SPRING FENCE CO. Box 101 Winchester, Ind.



FARM FENCE

41 INCHES HIGH

100 other styles of Farm, Poultry and Lawn Fencing direct from factory at save-the-dealer's-profit-prices. Our large catalog is free.

21 CENTS A ROD

KITSELMAN BROS. Box 21 Muncie, Ind

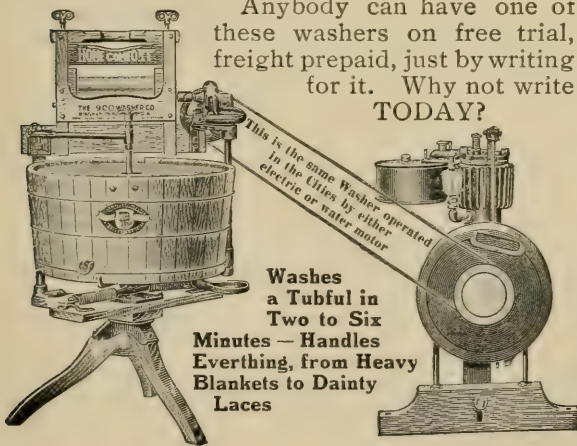
For 2 Cts. a Week —or Less. This 1900 Gasoline Motor Washer Does All the Family Washing

Greatest Labor Saver for Women Since the Sewing Machine was Invented. . . .

The 1900 Gasoline Motor Washer is now at work in thousands of homes. It is doing the work formerly done by women, **at a cost of 2 cents a week for gasoline!** Saving thousands upon thousands of dollars in wash bills! Saving worlds of wash-day troubles! Leaving the women free to do other work while the machine is doing the washing itself!

A Self-working Wringer with Motor Washer

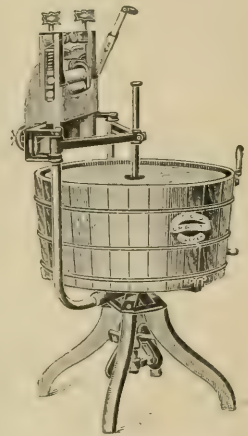
The motor runs Washer and Wringer. We guarantee the perfect working of both. No extra charge for wringer, which is one of the finest made.



Anybody can have one of these washers on free trial, freight prepaid, just by writing for it. Why not write **TODAY?**

**Washes
a Tubful in
Two to Six
Minutes — Handles
Everthing, from Heavy
Blankets to Dainty
Laces**

The outfit consists of the famous 1900 Washer ready to connect with an ordinary Gasoline Engine. You simply turn on the power and back and forth goes the tub, washing the clothes for dear life. And it's all so simple and easy that it is mere child's play to run it.



1900 Gravity Washer

Our gravity washer is what its name implies — gravity aids the hand to operate it. If you do not have an engine, this is the washer for you.

Send for FREE WASHER BOOK and 30 Days' FREE TRIAL OFFER!

Don't doubt! Don't say it can't be done! The free book *proves* that it *can*. But we do not ask you to take our word for it. We offer to send the 1900 Gasoline Motor Washer on absolute Free Trial for an entire month to any responsible person. Not a cent of *security*—nor a promise to *buy*. Just your word that you will give it a test. We even agree to *pay the freight*, and will take it back if it fails to do all we claim for it. The 1900 Washers are in successful operation in thousands of the best homes in every part of the country, giving universal satisfaction.

Just a Postal Card

A post card with your name and address sent to us *today* will bring you the book free by *return mail*. Address the 1900 Washer Co., Binghamton, N. Y. (8)

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors

HONEY AND WAX FOR SALE

See our special sale of honey on advertising page 11 of this issue. THE A. I. ROOT CO., Medina, O.

Bronzed honey labels, 1000 for 80 cts.; others, 60 cts. per 1000. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—White-clover honey, thoroughly ripened; A1 quality. E. C. PIKE, St. Charles, Ill.

FOR SALE.—Amber honey, \$9.00 per case of two 60-lb. cans. H. DAVENES, Sierra Madre, Cal.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Tupelo honey, barrels and cans. Fine and white. Sample, 10 cts. I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—Finest quality white extracted and comb honey. Write for prices. STEARNS & FOX, Fruitdale, S. D.

Aster honey of good quality, 2000 lbs. put up in 60-lb. cans; 7 cts., F. O. B. Brooksville, takes the lot. H. C. LEE, Brooksville, Ky.

FOR SALE.—Finest quality clover and buckwheat honey in 60-lb. cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Extra quality buckwheat honey in 60-lb. cans, two cans in a case, at 8 cts. Sample on request. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—White-clover honey in 60-lb. cans. Ripened on the hives. There is nothing finer in every respect. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Several tons of raspberry-milkweed honey (mostly milkweed) in new 60-lb. cans (two in case), a very fine honey. Write for price. Small sample free. P. W. SOWINSKI, Bellaire, Mich.

FOR SALE.—My 1913 crop of extra-fine quality of white clover and raspberry honey, 10 cts. per lb. Send for sample. GEORGE RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

FOR SALE.—No. 1 white-clover comb, \$3.50 per case; No. 2, \$3.00 per case. Fall comb No. 1, \$3.00 per case; No. 2 fall, \$2.50 per case; 24 sections to case, and six cases to carrier. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—40 cases (two 60-lb. cans each); a blend of white and sweet clover, the most part, and clovers and fall flowers; a very light amber, good quality, at 9 and 8½ cts. in large lots; 4 cases or less, 9 and 8½ cts. A. MOTTAZ, Utica, Ill.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; ½-lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60 lb. cans, very nice amber honey. HENRY STEWART, Prophetstown, Ill.

Buyers of honey will do well by sending for the December number of *The Beekeepers' Review* containing the name and address of over 100 National members having honey for sale. It is free for the asking. THE BEEKEEPERS' REVIEW, Northstar, Mich.

FOR SALE.—1260 lbs. No. 1 buckwheat extracted honey in 60-lb. cans, 7½ cts. per lb.

L. D. GALE, Sherman, N. Y.

FOR SALE.—Buckwheat extracted honey in 60-lb. cans and 5-lb. pails. Sample, 5 cts.

M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

Bellflower honey for sale in 5-gallon cans or 50-gallon barrels. Write for prices and free sample. BENJ. LISS, Lewiston, Oriente, Cuba.

FOR SALE.—Blended raspberry, buckwheat, and goldenrod honey; has a thick body and a strong and very rich flavor. Put up for sale in new 60-lb. tin cans. Price \$5.00 a can. Sample by mail, 10 cts., which may be applied on an order for honey.

ELMER HUTCHINSON, Pioneer, Mich.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you have, and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDRETH & SEGELKEN, New York, N.Y.

FOR SALE

FOR SALE.—New and used Danz, supplies cheap. WM. H. MARTIN, Rt. 1, Box 13, Osawatimie, Kan.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

In 1912 and '13 our bees wintered perfectly in the Eureka concrete case. Write for circular and learn about them. B.T. BOSSERMAN, Williamstown, O.

New crop of extra-fine quality alfalfa seed, \$7.00 per bushel; sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

FOR SALE.—A full line of beekeepers' supplies, also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—One check-protector, a device for protecting commercial paper. Will be useful in business houses. Will sell at far below cost. Correspondence solicited.

MRS. W. Z. HUTCHINSON, Flint, Mich.

FOR SALE.—Sweet-clover seed, white and yellow mixed, unhusked. Will make a surer catch than either alone; 12 cts. per lb.; 10 lbs. or more, 10 cts. per lb. Postage extra. F. W. LESSER, Rt. 3, East Syracuse, N. Y.

Beekeepers! On Jan. 1 there will appear on the market a new double-walled hive which is different in several respects from any other hive heretofore offered to the public. Write for description, photo, and prices. The catalogs will be out soon, and one will be mailed to all applicants free.

L. F. HOWDEN MFG. CO., Fillmore, N. Y.

WANTS AND EXCHANGES

A new gold watch for extracted honey.
L. A. DOSCH, Miamisburg, Ohio.

WANTED.—Pair of peafowls; also white rats.
Please state price. Address
MRS. A. M. SOMMER, Greenacre, Wash.

WANTED.—Sugar-bush on shares for 1914; would pay for information that will lead to my getting one.
CHARLES ZWELLY, Lemont, Illinois.

WANTED.—To buy a good farm from owner only. Possession now or next spring.
JUERGENS, Box 754, Chicago, Ill.

WANTED.—To lease large apiary or work on salary. Have had experience in several States, and can furnish best of references. State salary or terms in first letter. JAS. D. ARVIN, box 237, Millinocket, Me.

FOR SALE OR TRADE.—A good residence property, modern except heat, with outside sleeping-porch. Good poultry-houses and runs. Delightful climate. For particulars address A. DEARMON, Cheyenne, Wyo.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

Virginia farms; small and large, \$15 an acre up. Easy payments. Mild climate, fertile soil. Ideal for fruit, stock, or general farming. On railroad with big markets near by. Write for list, maps, etc. F. H. LABAUME, Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

BEEES AND QUEENS

FOR SALE.—50 to 200 colonies, eight-frame, first-class.
E. F. ATWATER, Meridian, Idaho.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100.
JOS. WALRATH, Antioch, Cal.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each: \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. BROCKWELL, Malvern Hill, Va.

Phelps' Golden combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; tested, \$2.00 and \$3.00; breeders, \$5.00 and \$10.00.
C. W. PHELPS & SON,
3 Wilcox St., Binghamton, N. Y.

FOR SALE.—Apiary of 100 colonies of bees in good condition; 75 extra hives, together with a complete set of implements, and every thing to work with; in a fine locality. For information write to
R. S. SHELDON, New Smyrna, Fla.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.00.

WM. S. BARNETT, Barnett's, Va.

FOR SALE.—90 colonies of Italians and blacks in 8-fr. hives, L. size, hand and factory made, all in good condition; 1 No. 5 Novice 2-fr. extractor, 1 Swiss wax-extractor, and other supplies. Price \$400.
S. REED, Coquille, Oregon.

FOR SALE.—100 colonies of bees, Root and Moore strain, and 25 colonies of hybrids in new single-wall 8-fr. home-made hives, standard Hoffman frames, 6 to each hive, with division-board; strong in bees, with plenty of honey; no disease. Will sell cheap if sold soon.
WILMER CLARKE,

Box 200, Earlville, Mad. Co., N. Y.

POULTRY

Rhode Island Reds. High grade stock for sale. Write me. E. O. WALTZ, Medina, Ohio.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorn, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

Indian Runner breeding-ducks laying now. Utility and exhibition stock (pure white eggs) sent on approval. DEROY TAYLOR, Box G, Lyons, N. Y.

FOR SALE.—Indian Runner ducks. Stock bred from first-prize hen and first-prize drake. Ohio State Fair. Fine birds, and unequaled egg-producers. Guaranteed birds at reasonable prices.
L. G. CARY, Trimble, Ohio.

Rhode Island Reds, Plymouth Rocks, White Leghorns, and White Wyandots, cockerels, hens, and pullets. Have your order booked now for eggs and baby-chicks for early delivery. Write for prices. CRYSTAL SPRINGS POULTRY YARDS, Boonville, Mo.

PIGEONS

Pigeons! Pigeons! Thousands, all breeds; lowest prices; satisfied customers everywhere. Start with our \$\$\$-making Jumbo Squab-breeders. Large, free, instructive, illustrated matter.

PROVIDENCE SQUAB CO., Providence, R. I.

MISCELLANEOUS

FREE.—A useful New Year's gift sent prepaid to each beekeeper who sends his address on a postal.
J. B. HOLLOPETE, Pentz, Pa.

FOR SALE AT A BARGAIN.—Model 36, four-cylinder, sixty H. P. seven-passenger "Thomas Flyer." By removing the rear tonneau it can be made into a truck with extraordinary carrying capacity.
E. C. GREER, 712 N. M. St., Mt. Vernon, Ohio.

HELP WANTED

WANTED.—Aparist for 1914. Comb honey, 200 colonies. State salary expected, and experience. Work to commence March 1. B. F. SMITH, Jr., Cowley, Wyo.

WANTED.—Help in an American apiary. Work the year round, and good wages to the right man. Man and wife preferred. H. H. ARNOLD, Trinidad Honey Co., Trinidad, Cuba.

WANTED.—A sober, energetic young man as salesman to solicit the retail grocery trade, and to help case, grade, bottle, and pack honey for shipment. Some knowledge of and experience with bees required. Give reference. State age and wages expected in first letter.

LATSHAW HONEY CO., Carlisle, Ind.

WANTED.—Experienced apiarist for coming season; man who is able and willing to work; extracted honey; wages \$60.00 per month on board for season. Give age, experience, and nationality, first letter. If you will work for us one season, and show your ability to handle bees, we will sell you a yard of bees on easy terms. SPENCER APIARIES CO., Nordhoff, Cal.

POSITION WANTED

WANTED.—Having sold my large apiary in Eastern New York, and wishing a change of climate, would like a position in large apiary on salary or shares.
D. C. STAHLMAN, Knox, N. Y.

WANTED.—Situation in Florida during winter and early spring; prefer queen-rearing or comb-honey production (can work anywhere); 17 season's experience. No profanity, tobacco, nor liquor. References, any merchant in this town.

GEORGE W. BABCOCK, Brockport, N. Y.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Improved golden-yellow Italian queens for 1913; beautiful, hustling, gentle workers. Send for price list. E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, \$1.00; tested, \$1.25 each. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on common stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

SUNDAY SCHOOL TIMES.

This most excellent weekly, devoted to the interest of the Sunday-school and the religious uplift of the family, is better than ever. The regular price is \$1.50 per annum, or \$1.00 in clubs of five or more. If any of our readers desire we shall be pleased to take their names in connection with GLEANINGS at \$1.00 for the Sunday School Times or \$2.00 for both.

HOT-BED SASH.

This is the time of year to be getting ready for the early spring vegetables by providing hot-bed sash. We call attention to our choice cypress sash, which are made 3 ft. 4 in. by 6 ft. for four rows of eight-inch glass let into grooves, or rabbeted. Unless otherwise specified, we furnish grooved sash. A single one, K. D., \$1.00; 5 of the same in a crate, \$4.75; 10 for \$9.00. If put together, add 10 cts. each; and for each coat of paint add 10 cts.; 8 x 10 glass for same, \$2.80 per box of 90 lights; 5 boxes at \$2.60; 10 boxes or over at \$2.50.

SWEET-CLOVER SEED.

The demand for this seed is remarkably good, especially in Iowa, Kansas, and Oklahoma, where its value is best known. The supply of seed bids fair to be somewhat short of the demand again this year. Because the seed continues to ripen for some weeks, the question of saving the seed is a difficult one, and those new in the business are apt to find the greater portion shelled off before they get ready to harvest it. What looks like a fine crop of seed early in the season may dwindle to small proportions by the time it is saved and hulled. We are prepared to supply choice seed at the following prices:

Prices in lots of	1 lb.	10 lb.	25 lb.	100 lb.
Melilotus alba, biennial...				
White sweet clover, hulled	.24	\$2.20	\$5.00	\$20.00
White sweet clover, unhull'd	.17	1.50	3.50	13.00
Melilotus officinalis, biennial				
Yellow sweet clover, hulled	.28	2.60	6.25	24.00
Yellow sweet clover, unhull'd	.21	1.90	4.50	17.00
Annual yellow, hulled...	.14	1.20	2.75	10.00

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0139, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0140, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0142, 2½ x 6 hexagonal thin-super mill, in fair shape. Price \$10.00.

No. 0153, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0154, 2½ x 6 hexagonal thin-super mill, in very good condition. Price \$14.00.

No. 0156, 2½ x 6 extra-thin-super mill, fair. Price \$10.00.

No. 0157, 2½ x 6 thin-super mill in good condition. Price \$12.00.

No. 0160, 2½ x 6 hexagonal thin-super mill, in good condition. Price \$12.00.

No. 0165, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0167, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price \$11.00.

No. 0176, 2½ x 6 extra-thin-super mill in fair condition. Price \$12.00.

No. 0180, 2½ x 6 hexagonal thin-super mill, in fair condition. Price \$10.00.

No. 0183, 2½ x 6 hexagonal thin-super mill, very good condition. Price \$14.00.

No. 0187, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price \$14.00.

No. 0188, 2 x 10 round-cell medium-brood mill, in good condition. Price \$14.00.

No. 0191, 2 x 10 round-cell Pelham mill in good condition for this kind of mill. The bases of the cells are not natural shape, but the walls are regular. Price \$7.00. Sample mailed free if interested.

No. 0182, 2½ x 12 round-cell medium-brood mill in very good condition. Price \$20.00.

No. 0186, 2½ x 10 hexagonal cell medium-brood mill in good condition. Price \$20.00.

No. 0206, 2½ x 10 hexagonal cell heavy brood Dunham mill in good condition. Price \$15.00.

No. 0207, 2½ x 6 hexagonal cell thin-super Dunham mill in good condition. Price \$10.00.

No. 0210, 2 x 10 round-cell medium brood mill in extra-good condition. Price \$16.00.

No. 0211, 2½ x 10 hexagonal cell medium-brood mill; rolls recut, and practically as good as a new machine. Price \$28.00.

No. 0212, 2½ x 10 hexagonal medium-brood mill; rolls recut, and practically as good as a new mill. Price \$28.00.

SPECIAL NOTICES

A. I. ROOT

The yam referred to on page 912 is, I find, grown on the farm owned by L. B. Varn, proprietor of Hotel Varnada, and he is selling them at 40 cts. a peck, or \$1.00 per bushel. We are just now happy over a peck I have received by parcel post. I do not yet know the name of this particular yam.

DASHEEN TUBERS FOR FLORIDA AND OTHER SUBSCRIBERS IN THE SOUTH.

All subscribers in Florida, or others so far south as to be out of danger from frost while in the mail, may have their dasheen tubers mailed from Bradentown at once, if they will send their names to me here in Bradentown. All who have paid up on GLEANINGS one year or more are entitled to two small tubers that may be planted at once if you will protect them if frost should come. All in the North should send to Medina, Ohio. My impression is the dried tubers are not likely to be injured by cold while in the mail-bags anywhere; but this remains to be proven.

Periodicals and "Sittlichkeit."

Many of our young people know nothing of some of the best, most fascinating reading in the world, because in their leisure for reading the books and periodicals closest at hand are time-wasters or worse. In this connection, the following editorial from *The Youth's Companion* is timely:

In the address that Lord Haldane gave before the American Bar Association a few weeks ago, he had much to say about *Sittlichkeit*. The word is German, and in English has no exact equivalent; but it means the common body of beliefs, standards, and ideals that represent the ethical attainment of a people. Lord Haldane describes it as governing a race far more intimately than law, which, indeed, is merely the expression of a part of it; and far more powerfully than individual conscience, of which, indeed, after God, it is the chief prop and inspiration.

He dwells upon its far-reaching effects, and the overwhelming importance of its being not only of high quality, but of really compelling strength. It is obvious that the sittlichkeit of a nation may deteriorate, and that its deterioration is a national disaster.

Lord Haldane was pointing out the undoubted fact that the English-speaking races have virtually the same sittlichkeit, and that it forms the greatest bond of friendship between them. But in his speech lies a lesson for any one who is able to influence the daily thoughts of the nation, and to insinuate standards of manners or morality. There are many such persons; but *The Companion* wishes here to speak of those of its own trade, that of writing and publishing, for what is written and printed and strewn broadcast over the land, more than anything else, forms and upholds the sittlichkeit of the community. From periodicals, books, and plays—more, perhaps, than from any other source—do our young people, and our old ones, too, receive their education in the common ethical tradition of the race. Plainly, any publisher or writer who uses his power to lower the ethical standards of the people, to weaken their confidence in a powerful moral tradition, is an anti-social force and a public enemy.

A part of the sittlichkeit of the American people has been a wise reticence in the public discussion of questions of sex, a fine refusal on the part of writers and publishers to profit by any appeal to prurient curiosity; a deep conviction that to exploit such topics in the popular press, no matter with what motive, is certain to do great harm, and little if any good.

But we seem to be in danger of losing that part of our fine national tradition—a most useful part as *The Companion* believes, and one that every decent man and woman ought to fight for in every possible way. Our literature has been clean; shall it become dirty? That is the question that faces us all, and that must receive a national answer. Our periodicals, our novels and our stage are giving to the public—any public that will pay, no matter how unfit—discussions and descriptions that no publisher or producer would have dared, or would have been willing, to offer twenty years ago. They give; is the public willing to receive?

This is the time of year when people are deciding what periodicals they will take during the ensuing twelvemonth; when all the periodicals present their bills of fare for the coming year, and urge their attractions, some with honest, some with specious arguments. Moreover, they put forth clubbing offers that, by linking unsuspected evil with known good, may completely thwart a subscriber's most careful intentions. There is only one safe course. No one should subscribe to a periodical of which he has not first-hand recent knowledge, and no one should select for his own reading, and that of his family, any publication that does not express and seek to uphold the highest aspirations of the nation.

Kind Words from our Customers

A PRESIDENT OF THE UNITED STATES WHO
"READS HIS BIBLE EVERY DAY."

The following kind words from our good friend Florence D. Richards, Ohio President of the W. C. T. U., I am sure will be found interesting from several points of view.

Dear Mr. Root:—I have just finished reading your articles in the Aug. 15th issue of GLEANINGS, and I want to tell you how much I have enjoyed them. I wish that "sermonette" on the first Psalm could be read by every young people's society in the land, for it is replete with good sound "takable" advice. I, too, wish that each person, young and old, would take the pledge: "I promise to read my Bible every day," and then faithfully keep it.

The *World's Morning Watch*, or *The Daily Bible Publishing Company* of New York sends out a little monthly magazine called "Daily Bible," which I have found very helpful. On the outer cover of the August number are these words from the President of the United States, Woodrow Wilson:

"I am sorry for the men who do not read the Bible every day. I wonder why they deprive them-

selves of the strength and of the pleasure. It is one of the most singular books in the world, for every time you open it some old text that you have read a score of times suddenly beams with a new meaning. There is no other book that I know of, of which this is true; there is no other book that yields its meaning so personally, that seems to fit itself so intimately to the very spirit that is seeking guidance."

I think we are to congratulate ourselves and the nation on having a president who reads the Bible every day. Such a righteous example will truly exalt the nation. "His leaf also shall not wither; and whatsoever he doth shall prosper."

I rejoiced with you in your climb over those Michigan hills, and enjoyed the Sunday-school led by your friend Mrs. Wilson. I am sorry those Michigan men failed to enfranchise her and the rest of the State's noble women. I hope you may go on climbing hills and "renewing your strength," until you will have rounded out a full century of years in the earthly existence, and ascended the hill of the Lord to receive the crown laid up for the faithful.

Lakeside, Ohio.

FLORENCE D. RICHARDS.

ONE MORE FOR THE "100-YEAR-OLD" CLUB.

I notice by the blue-record address that another year has rolled by, and my subscription should be renewed again. The paper is still very interesting, and much good is being accomplished. A. I. Root is certainly a peculiar man. At his age he is doing a wonderful lot of work. This is what is keeping him in good health, and I hope he will hold out at least thirty years yet.

I am 58 years old, and am accomplishing more work and making more money than at any other period of my life. I have more desire now than ever to live to be one hundred years old.

Experience has taught me some great lessons that I can profit by at this time. The good lessons I can profit by; and the poor or bad lessons I also profit by, by simply avoiding them, knowing by experience they were a cause of failure.

I am just as intensely interested in the wonderful progressive advancement in our nation as Mr. Root. I also make just as many discoveries, but I have no way of bringing them before the public because of the want of a publication.

The most interesting part of GLEANINGS now is the temperance question. Years ago I called this movement a national one. I often wondered how long our nation would keep raking in a revenue from this greatest of all evils. Every year it is larger and larger, in spite of all the preachers and Prohibitionists. The business class of the people are severely letting this question alone. Not one word comes from our churches advocating a business movement, and that a national one. Only once in the last year have I noticed that Mr. Root mentioned it along this line. Now public sentiment is beginning to wake up to the fact that each State and then the nation must take a hold of this matter, or this nation will end in despair.

There should be national laws passed to stop the manufacture of intoxicating liquors, as strong and severe as it now has against the counterfeiting of money. Then we could begin to accomplish something. If it were not for this increasing thirst for strong drink there would be no howl about the high cost of living. Stop the manufacture of drink, and use the grain for food for man and beast, and see how quick there would be plenty for all at half the cost now being paid for this grain—grain for food, not grain for drink. If this nation of ours must have a revenue, let it tax the grain, not the curse of the grain after it has been made into liquor.

Mr. Root, Mr. Terry, and myself are living without stronger drink than water, and our health is better in every way. If this is true with us, every other man or woman can live longer and better without it. Why manufacture it?

There is no sense whatever in abusing the saloon-keeper. He is our nation's servant, sanctioned by the government to dispose of this great river of booze so this whisky-soaked nation can rake in this great "wad" to have the rich "soak" from paying a few dollars less tax.

This is not a question for the churches to tackle. It is not a sentimental question. It is a business question—a question for the business people of the nation to clean up as a damnable stinking nuisance. Public sentiment is growing along this line, and in time it will surely clean it out.

Brewster, Wash., Oct. 24.

V. W. CLOUGH

NO. 501 SET OF QUALITY KNIVES

OUR set of "QUALITY" KNIVES is made up of one 8-inch SLICER, one 6-inch BUTCHER, and one 3½-inch PARING-KNIFE. A combination of three of the MOST USEFUL SIZES and DESIGNS that one can have in his home. In presenting this set of knives we want to impress upon the trade the fact that these knives are all their name implies, **QUALITY IN THE STRICTEST SENSE OF THE WORD.** There is nothing better in the way of cutlery to be had for **IT IS IMPOSSIBLE TO MAKE ANY THING BETTER.** The Set is **MADE UPON HONOR THROUGHOUT** to the MINUTEST DETAIL. **BLADES** are of the **VERY BEST TEMPERED CRUCIBLE STEEL, SWEDGED, ETCHED, and FINISHED** with the Highest Polish it is possible to put on metal. Handles are **GENUINE COCOBOLLO, Beveled Edges, Through Tang** with Three Large Brass Saw Rivets. We **ABSOLUTELY GUARANTEE** the **QUALITY** of this set of knives to be **Strictly First Class in Every Way** and the **BEST VALUE EVER OFFERED.** **LIST PRICE** the set \$1.00 postpaid.

PRICE
\$1.00
PER SET
POSTPAID



No. 501 Set of
Quality Knives

Premium Offer

We will send this complete set of knives postpaid to any reader who sends us one new yearly subscriber to *Gleanings in Bee Culture* at \$1.00 per year, or the same for four new six-months-trial subscribers at 25c. each.

A WORD OF PRAISE FOR THE PREMIUM KNIVES.

Calvert, Ala., Oct. 22, 1913.

The A. I. Root Co., Medina, Ohio.

I received the set of premium knives and am well pleased with them.

Yours very truly,

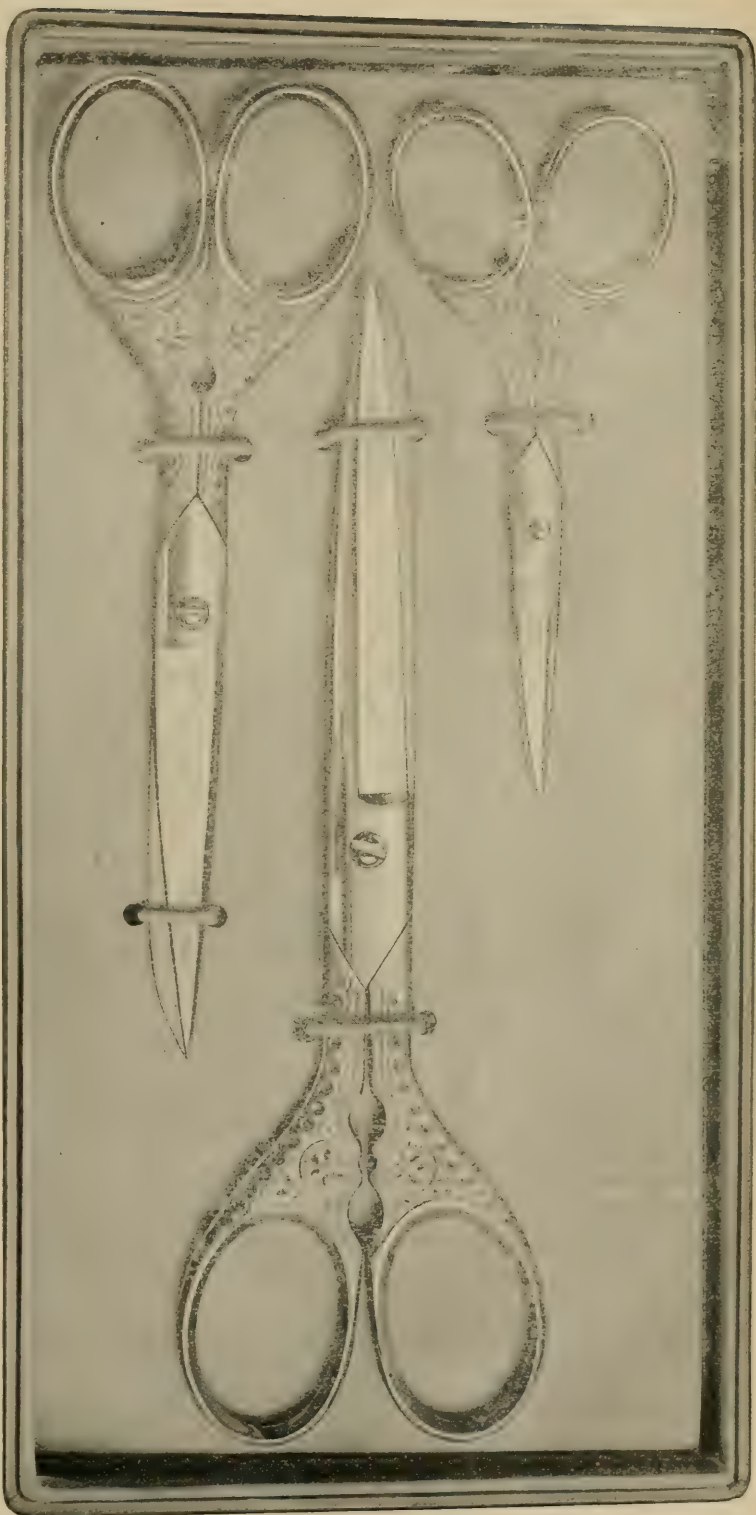
R. RHODENBERGER.

The A. I. Root Co., - Medina, Ohio.

THE BEEWARE BRAND MEANS SUCCESS
INSURANCE

Send for Annual Catalog which will tell you who is your nearest Distributor.
G. B. Lewis Company, Watertown, Wis.

GOLD-HANDLED SCISSORS SET NO. 800



This set is made up of a pair of six-inch, a pair of five-inch, and a pair of three-and-one-half-inch embroidery scissors with nickel-plated and polished blades. Elaborately designed gold-plated handles. The three pairs of scissors in the set are mounted on a card and packed in a lined box. List price of scissors, \$1.00.

PREMIUM OFFER

We will send one of these sets of scissors, postpaid to any reader who sends us one **new** yearly subscriber to GLEANINGS IN BEE CULTURE at \$1.00 per year, or the same for four new six-months trial subscribers at 25 cents each.

THE A. I. ROOT COMPANY, MEDINA, OHIO

Callender Shoe-scraper

Every House-
keeper will
want one



A glance at the
Illustration
will tell you
why.

Combination Scraper and Brush

Scrapes the mud from the sole of the shoe and cleans the sides at the same time. Every housewife should have one. It will reduce her work in saving the time necessary to clean rugs and floors, which otherwise would be tracked with dust and dirt from the street.

It is made of the finest material; no screws to rust; heavily japanned. Brushes remain stationary. It is so simple that a child can change the brushes.

Every household needs one or more.

Premium Offer: We will send one of these Callender Shoe-scrappers as premium to any reader who sends us TWO NEW subscriptions to GLEANINGS IN BEE CULTURE for six months at the rate of 25 cents each.

Postage on Canadian subscriptions 15 cents additional for each trial subscription for six months.

The A. I. Root Company, Medina, Ohio

A BEEKEEPER who uses cheap shipping-cases for his comb honey isn't necessarily mean. The chances are he's thoughtless. But many grocers or other dealers who receive his honey will not accept this generous view.

Among that number may be the very grocer he wants to influence most—the one who has the best trade in honey in that locality.

So he should use good shipping-cases, such as we make. To use them is economy, not an expense.

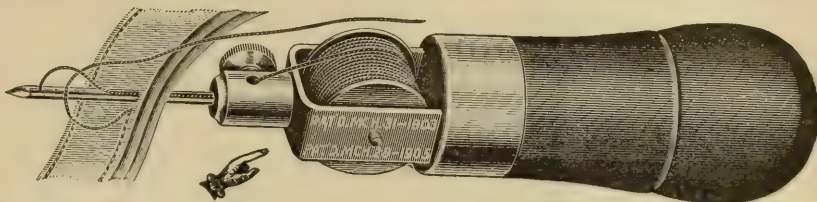
For particulars write us or our dealers, or consult our catalog.

The A. I. Root Company
Medina, Ohio

New York, Chicago, Philadelphia, Washington, Des Moines.

MR. FARMER

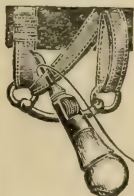
Let the "Perfect" Sewing Awl help solve the problem "You should worry" when you can get a dollar awl for such a little work. . . .



See that thread reel under the finger tips (This principle is right).

Needles in screw top hollow handle.

Sewing Awl mailed direct on your individual order for 50c each, postpaid, and insure safe delivery when the remittance is sent with order.



Repairing
Harness

THE real Awl with the exposed thread reel in natural position under the finger tips where you can automatically control the tension.

No springs or levers—so simple a child can use it.

Practical, useful, handy—can be carried in the pocket.



Repairing
Shoes

This Awl will pay for itself many times over through the convenience derived from such a tool at just the right time.

Will be found to be of special value to every household. It is a practical hand-sewing machine for the speedy repairing of harness, shoes, belts, carpets, canvas—in fact it can be used for all kinds of heavy sewing.



Repairing
Buggy Top

A **PREMIUM** that will not disappoint you. Each Awl is equipped with a supply of waxed thread, diamond point needles, straight and curved, and directions, in suitable mailing carton.

PREMIUM OFFER.—We will send one of these awls as premium to any reader who sends us two **NEW** subscriptions to **GLEANINGS IN BEE CULTURE** for six months at rate of 25 cents each.

The A. I. Root Company, Medina, O.

EARLY-ORDER CASH DISCOUNTS

Apply Here just as they
do at the Factory

As Southwestern distributors of **ROOT'S BEEKEEPERS' SUPPLIES**, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our beekeeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous goods, and the prices in our special catalog are the same as their own. There is an extra saving for you in ordering from us—**FREIGHT**. Better give this your special attention before ordering from elsewhere.

THE CASH DISCOUNT ON EARLY ORDERS PLACED IN DECEMBER IS 4 PER CENT.

This applies to every thing in the way of beekeepers' supplies except a few special articles. On large general orders we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

REMEMBER WE MANUFACTURE THE FAMOUS WEED PROCESS COMB FOUNDATION.

We have a large demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 5 per cent.

Toepperwein & Mayfield Co.
San Antonio, Texas

17c a Day

Opens the Way to Better Pay

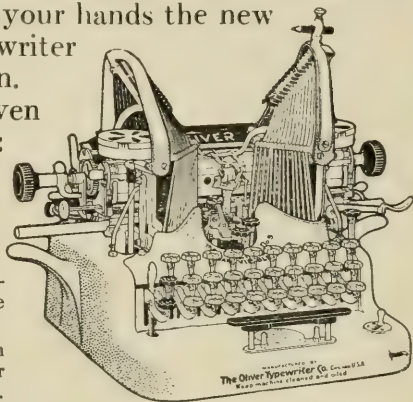
A few dollars, plus your promise to pay the balance at the rate of 17 cents a day, places in your hands the new "Printype" model Oliver Typewriter No. 5, our very finest production.

The best advice that can be given to the young man or woman is:

Get an Oliver Typewriter!

This offer places at your command a machine that turns time, energy, and enterprise into the pure gold of *success*.

Thousands of ambitious graduates, with the aid of Oliver Typewriters, have won their way to better pay and broader opportunity. This is the age of mechanical writing. The great world of modern business revolves around the typewriter. Typewriter operators are in demand everywhere. Our employment Bureaus in all the important cities are swamped with calls for competent Oliver operators.



Printype OLIVER Typewriter

The Standard Visible Writer

Easy to Pay--17 Cents a Day

You can make the machine meet the payments. You doubtless spend more than this amount every day for trifles you do not need.

Thousands have paid for Oliver Typewriters on this plan without the slightest effort. Are you going to let a matter of pennies stand between you and this money-making machine?

Against *your* risk of a few dollars *we* risk a \$100 typewriter—the same machine that is used by the greatest firms and corporations throughout the world.

Shall we send you full details of the Easy Purchase Plan?

Catalog mailed on request. Address

The Oliver Typewriter Co., 116 Prospect Ave., Cleveland, O.

“Look Beyond the End of Your Nose”

grandfather used to say. A big Florida fruit grower remarked that he had to go to California to learn that he had been wrong for twenty years. So the potato growers of Maine get hints from Colorado; the apple men learn how to coöperate from the orange growers. Here's where the national-farm-weekly idea comes in. If you want to travel north, east, south, west and get your long-distance lessons in money-making methods without spending carfare, look beyond the end of your nose and get the national-farm-weekly habit; in other words, read *The Country Gentleman*.



THE DOUBLE-PROFIT FARMER isn't resting on a one-legged stool. He is setting his crops to his livestock and marketing the stock with a chance to make a profit on both. He is growing apples and eggs, or berries and broilers, on the same land on the double-crop plan. He is selling direct and getting both the producer's and the retailer's profits. He is fitting two or three specialties together to get the insurance of diversified farming, and he is safeguarded against total failure because he has three legs on his stool. Double-profit combinations are the backbone of the small place and they are described in nearly every issue of *The Country Gentleman*.



The marketing end of the farm business—getting the profit—is the keynote of THE COUNTRY GENTLEMAN, the national farm weekly. Five cents the copy, of all newsdealers; \$1.50 the year, by mail.

THE CURTIS PUBLISHING COMPANY

Independence Square

Philadelphia, Penna.

